THE RELATIONSHIP BETWEEN MANAGEMENT COMMITMENT, SAFETY KNOWLEDGE, SAFETY MOTIVATION AND SAFETY PERFORMANCE AMONG MALAYSIAN ARMY CREWS

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BY
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Abstract

Accidents occuring during work are among the contributing factors to the high rate of injuries among workes in Malaysia, particularly in the construction and manufacturing industries. Such incidents have also involve the Malaysian Armed Forces (MAF), affecting personnel, equipment and valuable assets which could impact the overall readiness and national defense strategies. This study was conducted in relation to aspects of compliance with safety and health in the environment of the crew of armoured vehicles of the Army. The research design employed was descriptive and cross-sectional. A quantitative approach was used, involving a questionnaire survey conducted among members of the Third Regiment of the Royal Armor Corps (3 KAD). A total of 169 sets of questionnaires were distributed to obtain data for this study and analyzed through the Statistical Package for Social Science (SPSS) Version 29 software through descriptive analysis and pearson correlation analysis. Feedback from the results of the study basically shows that there is a significant positive relationship between Management Commitment, Safety Knowledge and Safety Motivation with Safety Performance to maintain and improve the safety of armoured vehicle crews in 3 KAD. The findings imply that to enhance safety performance among armoured vehicle crews, organizations should prioritize visible management commitment by consistently supporting safety initiatives, allocating adequate resources, and strictly enforcing safety policies to build a culture of trust and accountability. Additionally, improving safety knowledge through structured training and continuous learning opportunities can better equip soldiers to identify hazards and follow proper procedures. Strengthening safety motivation by reinforcing the value of safe behavior and recognizing proactive safety actions can further encourage soldiers to adhere to safety protocols and actively minimize operational risks. This study provides clear evidence that Management Commitment, Safety Knowledge, and Safety Motivation play significant roles in shaping the Safety Performance of armoured vehicle crews.

Keywords: Safety Perfromance, Commitment Management, Safety Knowledge, Safety Motivation

Abstrak

Kemalangan semasa bekerja merupakan antara faktor penyumbang kepada kadar kecederaan yang tinggi dalam kalangan pekerja di Malaysia, terutamanya dalam industri pembinaan dan pembuatan. Insiden sebegini turut melibatkan Angkatan Tentera Malaysia (ATM) yang memberi kesan kepada anggota, peralatan dan aset bernilai, sekali gus boleh menjejaskan kesiapsiagaan serta strategi pertahanan negara. Kajian ini dijalankan berkaitan dengan aspek pematuhan terhadap keselamatan dan kesihatan dalam persekitaran krew kenderaan perisai Tentera Darat. Reka bentuk kajian yang digunakan adalah berbentuk deskriptif dan keratan lintang. Pendekatan kuantitatif telah digunakan dengan melibatkan tinjauan soal selidik ke atas anggota Rejimen Ketiga Kor Armor Diraja (3 KAD). Sebanyak 169 set soal selidik telah diedarkan untuk mendapatkan data kajian ini dan dianalisis menggunakan perisian *Statistical Package for Social Science* (SPSS) Versi 29 melalui analisis deskriptif dan analisis korelasi Pearson. Dapatan kajian menunjukkan bahawa terdapat hubungan positif yang signifikan antara Komitmen Pengurusan, Pengetahuan Keselamatan dan Motivasi Keselamatan dengan Prestasi Keselamatan dalam mengekalkan dan meningkatkan keselamatan krew kenderaan perisai di 3 KAD. Implikasi dari penemuan ini menunjukkan bagi meningkatkan prestasi keselamatan dalam kalangan krew kenderaan perisai, organisasi perlu mengutamakan komitmen pengurusan yang jelas dengan sentiasa menyokong inisiatif keselamatan, memperuntukkan sumber yang mencukupi, serta menguatkuasakan dasar keselamatan secara konsisten bagi membina budaya kepercayaan dan akauntabiliti. Peningkatan pengetahuan keselamatan melalui latihan yang tersusun dan peluang pembelajaran berterusan dapat membantu krew kenderaan perisai mengenal pasti bahaya serta mematuhi prosedur yang ditetapkan. Pengukuhan motivasi keselamatan dengan menekankan nilai tingkah laku selamat dan pengiktirafan terhadap tindakan proaktif juga dapat mendorong krew kenderaan perisai untuk sentiasa mematuhi protokol keselamatan dan secara aktif mengurangkan risiko operasi. Kajian ini memberikan bukti yang jelas bahawa Komitmen Pengurusan, Pengetahuan Keselamatan dan Motivasi Keselamatan memainkan peranan penting dalam membentuk Prestasi Keselamatan krew kenderaan perisai.

Kata kunci: Prestasi Keselamatan, Komitmen Pengurusan, Pengetahuan Keselamatan, Motivasi Keselamatan

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In the name of Allah, the Most Gracious and Most Merciful

Alhamdulillah, all praise be to Allah S.W.T because with his permission and grace I managed to complete this study to fulfill the requirements for the award of a Master of Science Degree (Occupational Safety and Health Management), Universiti Utara Malayasia.

A great of appreciation and many thanks for the kindness which may not be reciprocated by me to the supervisor of the study, Assoc. Prof. Dr. Zuraida and Dr. Intan Suraya for all their help. They have helped a lot in guiding, reprimanding and giving useful advice until the completion of this study. Also an expression of thanks to my comrades who were also involved in completing this study where they also always gave me tireless support.The officers, members and staff of 3 KAD who were involved directly or indirectly by giving me commitment and cooperation throughout this study. Not forgetting also the lecturers of the Master of Science Program (Occupational Safety and Health Management) who are always committed to providing help, guidance and also sharing their bittersweet experiences throughout this study.

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Finally, may Allah S.W.T always give hidayah and guidance to all of us in facing the challenges ahead. Inshaa Allah. Thank you.

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List of Abbreviations

OSH	Occupational Safety and Health
DOSH	Department of Occupational Safety and Health
ASMIS	Army Safety Management Information
IV	Independent Variables
DV	Dependent Variables
CEO	Chief Executive Officer
KAD	Kor Armor Diraja
MAF	Malaysia Armed Forces
PROTAP	Prosedur Tetap
CO	Commanding Officer
OC	Officer in Command
SOP	Standard Operating Procedure
Tpr	Truper
LKpl	Lans Kopral
Kpl	Kopral
SIBMAS	Système Industriel Belge de Matériels d'Aviation et Spatiale
Sjn	Sarjan
SSjn	Staf Sarjan
Lt M	Leftenan Muda
Lt	Leftenan
Kapt	Kapten

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

According to a report by the U.S. Govertment Accountability Office (2021), a total of 123 Army and Navy personnel died in 3,753 non-combat tactical vehicle accidents between 2010 and 2019, accounting for 63% of fatalities caused by vehicle rollovers due to driver negligence, delayed supervision and lack of training. Even a study by Minami and Madnick (2007) stated that since the onset of the Iraq War in 2003, approximately 20% of the army's combat deaths have occurred due to non-combat events by US Army. The measures taken to address this issue, US Army have designated system of record for OSH known as Army Safety Management Information System (ASMIS) 2.0 as a method to avoid future loss prevention (Annual Assessment of the Army Operational Safety Program, 2023). This is shows that even the great powers of the world also see the need for safety performance through OSH management to prevent any form of loss to the assets and to maintain the level of readiness of their military.

The Malaysian Army is not exempt from facing non-combat occupational accidents. Based on Figure 1.1, over the seven-year period, the trend of army-related incidents varied annually, showing a concerning number of injuries and fatalities each year. Negligence remains the leading cause of these accidents, surpassing technical issues. If left unaddressed, this problem could significantly affect the army's operational readiness. Ajmal et al. (2022) review an accidents involving vehicles often recur due to weaknesses in safety procedure compliance and the management of risky behavior, with negligence being the main contributing factor. Although various approaches have

been introduced to reduce accidents, the lack of consensus on the most effective methods has created challenges in implementing effective safety measures (Akbari et al., 2024). Thus, safety performance is not just about avoiding accidents, but it was essential to protect lives, uphold readiness, safeguard assets and ensure effective safety governance of army assets.

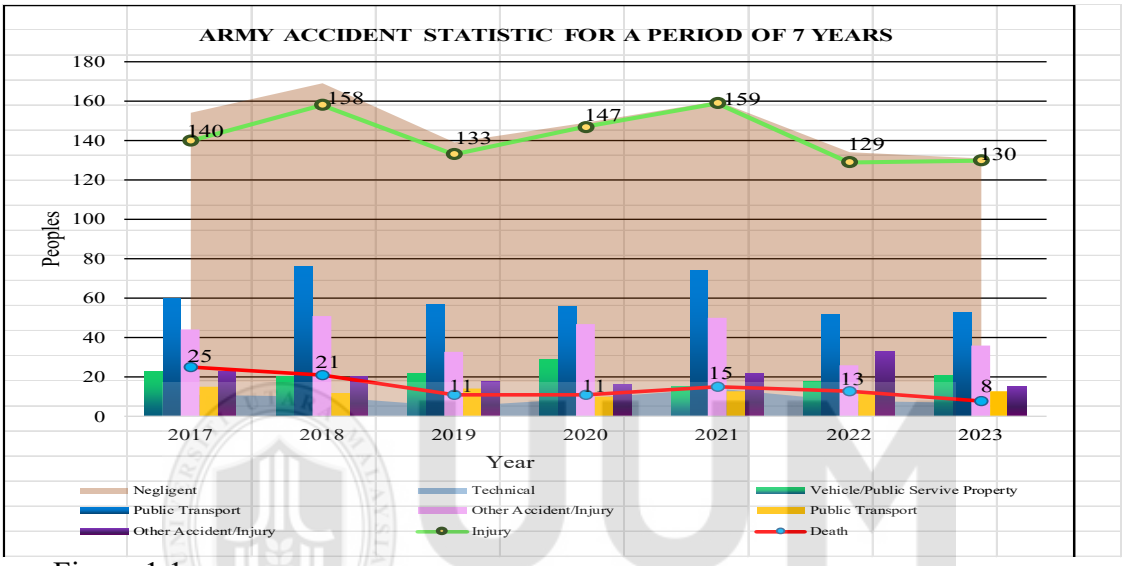

Figure 1.1
Army accident statistics for a period of 7 years
Source: Legal Cell, Human Resource Branch, Army Headquarters 2023

This issue was not isolated to the army only, in 2023 Malaysia experienced a 13.8 percent increase in occupational injury cases, with a total of 38,950 incidents reported compared to 34,216 in 2022. As a result, the occupational injury rate per 1,000 workers increased to 2.46, up from 2.26 in the previous year (DOSM, 2024). The upward trend suggests systemic challenges in safety performance at the national level underscoring the need for more effective implementation of OSH practices across all sectors, including the army.

In the Malaysian Army, the Royal Armoured Corps (KAD) is one of the main domains of the combat element, with one of its key characteristics being mobility where every soldier is mounted in a vehicle, allowing troops to move quickly along roads and

tracks (The Army, M 1 TD, 2010). Others distinctive features possessed by this corps and its regiments include firepower, protection, communication and endurance (The Cavalry Regiment, 2019). Therefore, the officers and personnel who fully operate these vehicles, known as the crew, are expected to possess a high level of knowledge and skills in handling and maintaining these assets, including aspects of safety (PROTAP No 1, 2020). Compliance with safety procedures for combat vehicle crews is crucial and must be guided by current policies and guidelines in order to safeguard the asset (Siao and Kuo, 2023).

Since the establishment of Malaysian Army in 1933, the policies and procedures particularly concerning safety and security have been shaped through adaptations of British military practices (The Army, M 1 TD, 2010). Hoever, the army does not deny safety performance in Occupational Safety and Health (OSH) is important for fostering a safe and healthy work environment, particularly because army faces a high risk of accidents (K&KP TD, 2023). While the Occupational Safety and Health Act 1994 (OSHA 94) does not apply to the armed forces as stated under Section 1(3) of the Act, the army implemented its own guidelines known as Keselamatan dan Kesihatan Pekerjaan (K&KP) TD, 2023. This guidelines its primary importance lies in protecting soldiers from accidents, injuries and illnesses, which in turn enhances their physical and mental well-being. K&KP TD 2023 is a procedure produced with a guidance by Department Occupational Safety and Health (DOSH), which has been signed by the Chief of Army and it is the obligation of all formations to implement the policy.

Refer to Figure 1.1, shows that the army continues to face a high number of non-combat-related accidents over the years, mainly due to negligence. For precaution purpose, the intend of K&KP TD 2023 to initiated good occupational safety and health (OSH) practices in the army which can result in financial savings by reducing costs

associated with workplace incidents, this include medical costs and compensation claims, and by lowering maintaining vehicle or assets due to improved safety record. Hedlund et al. (2016) had found another reason why work environment regulation are not followed and workplace accidents occur was lack of emphasis by organization regarding safety issues. Learning from the U.S. Army (Army Leadership and The Profession, 2019), which uses an advanced system (ASMIS 2.0) to manage occupational safety, shows that strong commitment to safety helps prevent losses and improves troop readiness. The Malaysian Army must adopt a similar or a better proactive and integrated safety system.

To improve crew safety performance, this study focuses on three main factors: management commitment, safety knowledge, and safety motivation. Safety performance was crucial in ensuring that each amoured vehicle crews can act safely and efficiently, thereby reducing risks and enhancing the overall effectiveness of the regiment in achieving its mission objectives (The Army, M 1 TD, 2010). Among these factors, management commitment plays a central role in shaping a strong safety culture. Pratama et al. (2023) highlighted how strategic human resource management practices directly influence employee commitment, emphasizing its importance in achieving organizational goals and maintaining a sustainable competitive advantage. The researchers further asserted that management commitment is essential for the effective functioning of any organization, including military institutions. In addition, safety knowledge defined as the understanding and awareness of principles, practices, and procedures necessary to ensure a safe environment helps prevent accidents and supports effective risk management (Vinodkumar & Bhasi, 2010). Putra et al. (2022) also stated that workers who possess strong safety knowledge are more likely to recognize the consequences of workplace accidents, both for themselves and their peers, thereby

promoting more cautious behavior. Finally, safety motivation is equally important. In modern organizations, motivation processes must address the specific needs of employees, as this directly impacts their productivity, performance, and job satisfaction (Macovei and Argintaru, 2016). In the army perspective, where safety is critical and operational environments are high-risk, maintaining high levels of motivation among crew members is essential to drive consistent and proactive safety behavior.

In summary, safety performance is an important element to be applied to the armoured vehicle crews so that the usability of the workers can be exploited appropriately through the approach and support from the superiors which is commitment management. Armoured vehicle crews will be more assured in carrying out assignments when the practice of safety knowledge is fully practiced while carrying out whatever task they are responsible for. In order to enhance a positive attitude by always alert to the environment, the two factors that have been mentioned will increase the strength in safety motivation because they believe that the wellbeing of employees is always prioritized. Therefore, in this study, the researcher is intended to investigate the relationship between the management commitment, safety knowledge and safety motivation toward the safety performance among the armoured vehicle crews.

1.2 Problem Statement

Armoured vehicle accidents involving the army are influenced by several key factors, including vehicle system failure, hazardous road conditions and risky crew safety performance (Tan and Solah, 2022). Even Jaafar et al. (2003) found military vehicle involve in accident during peace time operation, such road accidents can result from factors related to road users, vehicles and the environment. However, risky crew safety performance, including safety compliance, safety participation and risky

behavior, are the main contributors to accidents and injuries compared to vehicle system malfunctions and road conditions (Su, 2021). This is supported by a U.S. Government Accountability Office (GAO) report, which found that 83% of tactical vehicle accidents in the U.S. Army and Marine Corps were caused by human error such as procedural violations, poor judgment and inadequate supervision (Yates, 2025). Because of inadequated to comply with training or unprepared armoured vehicle crew, making human error the main cause of accidents and injuries compared to mechanical failures or haxardous driving environments.

Table 1.1
Cost due to armoured vehicle accidents for 7 years

Date	Location	Cost
5 Mac 19	2 KAD, Port Dickson, Negeri Sembilan	RM19,565.37
30 Sept 19	19RAMD (Mek), KTJ Op PASIR, Sabah	RM3,256,799.33
30 Apr 20	2 KAD, Port Dickson, Negeri Sembilan	RM99,413.36
28 Feb 22	11 KAD & 12 RAMD (Mek), Lapangsasar Asahan, Melaka	RM224,499.04

Source: Legal Cell, Human Resource Branch, Army Headquarters 2023

A study by Hussin et al. (2020) on the armoured vehicle, suggests that human factors such as improper maintenance, installation practices and operational handling can contribute to the failure of the vehicle's system. These human induced errors or negligence can accelerate wear and lead to breakdowns, thereby increasing the risk of accidents during operations. The data from Table 1.1 clearly shows that armoured vehicle accidents have resulted in significant financial losses to the Malaysian Army, with a single incident in Sept 19 costing over RM3.25 million. These repeated incidents, occurring across various units such as 2 KAD, 19 RAMD (Mek), 11 KAD and 12 RAMD (Mek), indicate systemic issues that likely stem not only from technical failures but also from deficiencies in crew safety performance. Strengthening safety performance among armoured vehicle crews through better compliance, knowledge,

and motivation not only protects personnel but also prevents costly vehicle damage, enhances mission readiness and preserves national defense asset.

Accidents involving armoured vehicles can have severe implications when amoured vehicle crew leaking in safety performance, such as in rollover simulations of the SIBMAS (Système Industriel Belge de Matériels d'Aviation et Spatiale) 6x6 Vehicle, failure to comply with safety procedures by not securing restraints resulted in head injury metrics far beyond survivable thresholds (Tan and Solah, 2022). That among the worse accidents that have ever occurred involving an armoured vehicle from 3 KAD, Sungai Petani while the vehicle descending Bukit Gantang, which resulted in the deaths of their two armoured vehicle crews (Astro Awani, 2014), indirectly caused a loss of skilled crews. Moreover, poor situational awareness, often rooted in risky behavior or fatigue, is linked to the majority of vehicle-related accidents (Driving School, 2023). Thus, the study focuses on examining management commitment, safety knowledge and safety motivation as independent variables to determine how they influence safety performance, which serves as dependent variables affecting armoured vehicle crews.

This study emphasized on management commitment, safety knowledge and safety motivation as the independent variables which are key factors that influence safety performance, as the dependent variables. According to Burke et al. (2002), safety performance comprises behaviors such as using personal protective equipment, reducing risk through safe work practices, communicating health and safety information, and exercising safety related responsibilities. These behaviors are essential in high risk settings where consistent and routine safety actions can prevent serious incidents. Apart from that, Chan et al. (2023) further highlighted that organization supported by management can improve safety performance through fostering

continuous improvement and learning from past incidents, this demonstrates strong commitment to safety can cultivated a culture that prioritizes safe practices. According to Siao and Kuo (2023), safety knowledge factor was undeniably vital in the military system as it contributed to the successful completion of missions and protected personnel during the execution of combat tasks. Nevertheless, motivation often stems from personal values, leadership reinforcement and a sense of responsibility for team safety (Neal and Griffin, 2006), the integration of these criteria will require armoured vehicle crews to work together to successfully complete any task. Therefore, higher levels of management commitment, safety knowledge, and safety motivation are associated with improved safety outcomes in the workplace (Neal et al., 2000).

This study addresses several research gaps related to the relationship between management commitment, safety knowledge, safety motivation, and safety performance. An evidence gap exists concerning the influence of management commitment on safety performance. Saleem (2022) found that strong management concern for employee safety leads to improved safety compliance, as employees feel more motivated to protect themselves. In contrast, Bayram (2018) reported no direct relationship between management commitment and safety performance, indicating conflicting findings despite examining similar variables. This inconsistency highlights the need for further research to clarify the true nature of this relationship. A conceptual gap is observed in the understanding of safety knowledge. Saleem (2022) emphasized that individuals with greater safety knowledge are more capable of applying safety standards effectively. However, Putra et al. (2022) proposed that safety knowledge must be transferred through training and mentoring to improve safety performance. These differing views raise questions about whether knowledge alone is sufficient or if its effectiveness depends on how it is conveyed and internalized. There is a theoretical

gap regarding the role of safety motivation. Vinodkumar and Bhasi (2010) viewed safety motivation as a mediating factor that, along with knowledge, influences safety performance. In contrast, Panuwatwanich (2016) treated safety motivation as a direct driver of safe behavior, suggesting varied interpretations of its function.

A contextual gap is evident in the selection of study populations. Most prior research has focused on workers in manufacturing, healthcare, or construction sectors; Putra et al. (2022), Vinodkumar and Bhasi (2010) on manufacturing, Saleem (2022) on healthcare and Panuwatwanich (2016) on construction. Limited studies have explored these relationships within armoured vehicle crews behaviour as an operator of the vehicle; mostly studies on technical such as Tan and Solah (2022) examine injuries on rollover of vehicle, Minami and Madnick (2007) on combat vehicle accidents in Iraq and Hussin et al. (2020) about mobility of armoured vehicle. Therefore, this study aims to address this gap by examining the impact of management commitment, safety knowledge, and safety motivation on safety performance among armoured vehicle crews. Finally, limited empirical studies have explored how organizational and psychological factors, such as management commitment, safety knowledge and motivation, affect safety performance in the army. As Minami and Madnick (2007) discussed high level dynamic management that impact safety, while studies by Tan and Solah (2022) demonstrated consequences of injuries in a simulated rollover of the SIBMAS 6X6 armoured vehicle, and outcome of lack maintenance for vehicle track (Hussin et al., 2020). This alarming finding reinforces the need for robust safety performance, which is significantly influenced by management commitment, the dissemination of practical safety knowledge, and the internal motivation of personnel to apply such practices. Review the affect by Md Radzi et al. (2025) in the military, personnel effectiveness and readiness depend heavily on safety performance, factors

such as safety leadership, culture and technological advancement all impact safety performance. Hence, this study focuses on these three predictors to understand their impact on safety outcomes among armoured vehicle crews. Studies from Saleem (2022) reported that the greater the understanding of safety standards, the more effectively they can be applied and performed, however his study more towards on commercial sector, most likely it can be adapt to the army. Is one of the interests, armoured vehicle crews that are committed to using safety procedures can motivate themselves and others to maintain a safety focused mindset.

Safety Climate Theory (Zohar, 1980) was chosen for this research as it shared perceptions among employees regarding the importance and priority of safety within their organization such as army. It reflects how management attitudes, safety policies, training knowledge, and communication practices influence armoured vehicle crews beliefs and behavior regarding safety. Zohar (1980) research demonstrated that organizations with strong safety climates characterized by visible management commitment, effective training and high status safety officers tended to have lower accident rates and more effective safety programs. In a military context, Safety Climate Theory is highly relevant due to the hazardous and high-risk nature of military operations, especially involving armoured vehicles (Schuler and Matuszczyk, 2022). Armoured vehicle crew operate under strict hierarchical structures, where management (command leadership) plays a vital role in setting the tone for safety expectations. Findings from this study may refine existing theories by incorporating contextual variables unique to military duties and operations.

This study aimed to look into the relationship between the independent variables commitment management, safety knowledge, and safety motivation and the dependent variable, safety performance. The findings are instrumental in identifying significant

relationships among the variables and in guiding higher level commanders to focus on elements that have a significant impact on the safety performance of the formation. To date, few studies have examine relationship between commitment management, safety knowledge, and safety motivation and safety performance in military context.

1.3 Research Questions

This study aims to answer several questions based on the problems identified as follows:

a. Does management commitment have significant relationship with safety performance towards military duties?
b. How do safety knowledge influence safety performance?
c. How do safety motivation influence safety performance?

1.4 Research Objectives

The important objectives that have been outlined in the study are as follows:

a. To examine the relationship between management commitment and safety performance among amoured vahilce crews.
b. To assess the influence safety knowledge on safety performance.
c. To evaluate the influence safety motivation on safety performance.

1.5 Significance of the Study

This study significantly contributes to improving internal military safety policies and leadership practices by identifying how management commitment, safety knowledge, and safety motivation influence safety performance among armoured

vehicle crews. It enables army leaders, particularly the Inspectorate Division, to revise safety protocols based on behavioral and motivational insights, ultimately enhancing operational safety and readiness. The research highlights the risks of prolonged downtime and personnel loss due to accidents, emphasizing the need for targeted training and policy enforcement. Theoretically, it extends Zohar's Safety Climate Theory to military settings, showing how shared safety beliefs and leadership behaviors impact safety in high-risk environments where external regulations like OSHA 94 do not apply. These findings provide a foundation for future safety policies and leadership development programs that promote a strong, proactive safety culture within the armed forces.

1.6 Scope of the Study

This study was conducted at 3 KAD in Sungai Petani, Kedah, which is part of the northern military formation of the Malaysian Army and specializes in armoured vehicle operations. The research focused on a specific sample consist of 169 respondent who are formally trained and assigned as armoured vehicle crews. The primary objective was to examine the relationships between three key independent variables; management commitment, safety knowledge, and safety motivation and their influence on the dependent variable, safety performance. Data was collected through the distribution of structured questionnaires to the respondents within that unit. The scope of this study is exploring how internal factors such as leadership practices, knowledge levels, and motivational aspects affect the safety performance of military crews during routine and operational tasks within this specific geographic and organizational context.

1.7 Definition of Key Terms

1.7.1 Safety performance

Safety performance incorporated into two dimension; compliance and participation, safety compliance involves adhering to safety procedures and conducting work in a safe manner, and safety participation includes assisting coworkers, promoting the workplace safety programme, demonstrating initiative, and actively working to improve safety standards (Neal et al., 2000).

1.7.2 Management commitment

The degree to which top management visibly supports and is involved in safety programs, demonstrates safety as a core organizational value, and ensures the allocation of sufficient resources to support safety initiatives (Neal et al., 2000).

1.7.3 Safety Knowledge

The understanding and awareness of the principles, practices and procedures necessary to ensure a safe environment, prevent accidents and manage risks effectively (Vinodkumar & Bhasi, 2010).

1.7.4 Safety Motivation

A desire and willingness of individuals to follow safety procedures and take actions to ensure their own safety and the safety of others (Vinodkumar & Bhasi, 2010).

1.8 The Organization of the Study

This study will cover five main chapters namely Chapter one (1) includes background of study, problem statement, research question, research objective,

significant of study, scope of study and definition of key terms. Next, chapter two (2) cover in detail the literature review related to OSH regarding the awareness and relationship for the implementation of work in the military. While in chapter three (3) will explore the research planning which includes elements of framework and research design, hypothesis, research procedures, population and sampling as well as pilot studies. Chapter three ends with a brief description of the analytical techniques used to obtain the results of data acquisition.

Chapter four (4) will break down through the study of each variable as well as describe in detail each finding obtained. Next, the last chapter, which is chapter five (5) will discuss each finding obtained by comparing and presenting the validity of the study with studies that have been done by previous researchers as discussed in previous chapter before. This chapter will end with recommendations and suggestions for problem statement discussed in chapter one previously and suggestions for further research. Chapter five will also inform the challenges of the implementation of the study in terms of limitations or constraints during the process of completing the study and then conclude with the conclusion of the study.

1.9 Summary

Chapter one introduces the foundation of the study, beginning with the background that highlights the importance of OSH in the military. It outlines the problem statement, which addresses gaps in safety awareness and implementation. The research questions and objectives are defined to guide the investigation. The significance of the study emphasizes its potential contribution to enhancing military safety practices. The scope clearly states the study's boundaries, and the definition of

key terms ensures clarity and consistency throughout the research. This chapter sets the stage for understanding the critical role of OSH in military operations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter explores both theoretical and empirical literature relevant to the study, the studies examining the relationship between management commitment, safety knowledge, and safety motivation with safety performance among armoured vehicle crews. While, the discussion regarding the underpinning theory guiding in this research focus on the Safety Climate Theory. By examining these facets, the review aims to provide a comprehensive understanding of the aspects that contribute to effective safety performance in armoured vehicle operations.

The literature selection for this review is based on several criteria. Primary sources include recent studies and articles published within the previous years to ensure the relevance and applicability of findings to current army practices. Key references such as OSHA 1994 and the Armed Forces Act 1972 are also included to provide a regulatory framework for the discussion. Studies from diverse sectors, including military and industrial environments, are reviewed to draw parallels and highlight best practices in safety management. The review is organized in a systematic pattern, starting with an overview of the critical role of safety performance in military operations. It then delves into specific elements such as management commitment, examining how leadership influences safety practices and compliance.

2.1 Safety Performance

The safety performance of armoured vehicle crews is a critical concern within military operations worldwide. As the backbone of armoured regiment, these crews navigate high-risk environments where operational safety is paramount. With a focus on OSH standards, it guided to underscore the imperative of rigorous safety performance in order to mitigate the risk of accidents and uphold the well-being of the crews. In this study, the dependent variable is safety performance, which comprises two dimensions: compliance and participation. Safety compliance refers to following safety procedures and performing work safely, whereas safety participation comprises assisting coworkers, boosting the workplace safety program, demonstrating initiative, and striving to enhance safety in the workplace (Neal et al., 2000). It is believe that if individuals have favourable perception of safety, they are less likely to act unsafely on site. As a result, accident rate are likely to decline.

It is similar interpretation regarding safety performance by Martinez-Corcoles et al. (2017), but his view on safety compliance, also known as adherence to safety rules, encompasses the essential activities that individuals must perform to maintain a safe workplace. This involves adhering to established job practices and using the necessary protective equipment. Compliance with safety regulations is closely linked to the rules and procedures set by the army. In contrast, participation encompasses behaviours that may not directly impact an individual's personal safety but foster a culture of safety. This includes discretionary, extra-role, and self-directed actions that go beyond standard safety measures to improve workplace safety. Safety participation involves voluntary activities that enhance the overall safety culture within the army,

this includes undertaking voluntary safety tasks, assisting co-workers with safety-related concerns, and participating in safety meetings.

Review by Md Radzi (2022) stated that safety performance is an important element among OSH researchers and industry, the era of Industry 4.0 has significantly transformed operations in the manufacturing sector, driving a shift towards computing and automation technology. A large number of organizations strive to improve and maintain safety performance through prevention action strategies in an effort to minimize the rate of accidents and injuries at work through corrective action as a result of accidents that occur. A study by him also argues that safety performance can operate as two types of safety behaviour; safety compliance and safety participation where the culture of safety aspects in the daily work routine through continuous training as well as compliance with Prosedur Tetap (PROTAP) during the organization can produce a competent crew in the field of responsibility without neglecting safety aspects. Although previously safety performance was measured based on the number of accidents and injuries, safety compliance and safety participation are also considered as dimensions of safety performance.

2.3 Management Commitment

The first independent variables is management commitment referred to Neal et al. (2000), stated that the degree to which top management visibly supports and is involved in safety programs, demonstrates safety as a core organizational value, and ensures the allocation of sufficient resources to support safety initiatives. Management should establish clear policies regarding safety that encourage adherence to safety standards.

Bayram (2018) suggests that commitment to occupational health and safety (OSH) should start with top management and extend to all members of the organization, similar to a superior commander leading soldiers. This commitment must be clearly articulated in the OSH policy and effectively implemented in practice. This commitment reflects how much top management prioritizes occupational safety in decision-making and the resources allocated to it. Vinodkumar and Bhasi (2010) found that organisations with low accident rates place greater emphasis on these factors compared to those with high accident rates. Besides, from their studies it indicate the important of strong, visible and practical safety leadership from the organization, then supported by adequate resource and integration into decision making is essential to foster a positive safety culture and reduce accidents in any oragnization, including military setting.

Hamid at el. (2015) stated commitment management can be defined by how highly it prioritizes safety and how effectively it communicates and addresses safety issues. Research indicates that management holds both the legal authority and responsibility for controlling employee behavior. Therefore, it is crucial for management at all levels to be fully committed to manage accidents and preventing by implementing appropriate actions and goals to mitigate workplace incidents. Workplace mishaps, such as employee injuries, disabilities, or fatalities, can significantly increase operational costs. These costs arise from overtime work, loss of machine and labor hours, increased wages and equipment costs, reduced productivity and quality, higher insurance and compensation payments, and disrupted schedules. Hamid at el. (2015) research is focused on work in the construction industry due to less attention regarding management commitment in this area, and they stated that management commitment plays very important role in an organization well-being and

prosperity in the construction industry as proven by many studies. However, some employers in the construction sector often overlook their responsibilities to ensure safety at their sites for various reasons.

All the studies that have been carried out whether abroad or in the country state the importance of management commitment in OSH management, it has a positive effect not only on the organization but also on the workers. Involvement from the top show the commitment of an organization in an effort to lower the rate of accidents at work and at the same time be able to monitor more closely compliance with any policy or procedure that has been issued by the organization. It is like a two-way relationship between supervisor and crews, any discovery or mishap that occurs were re-evaluated immediately for the good of the army. This indirectly also add value to improve safety performance among crews.

Review over literature reported that management commitment as a parts of contributing factor for safety performance. Contrary to expectations, Vinodkumar and Bhasi (2010) found a significant direct connection between specific safety management process and components of safety performance. Notably, their study revealed that management commitment directly predicts safety compliance, without affecting safety knowledge or motivation. However, the study does not further interpret the relationship between management commitment and overall safety performance, as it focuses exclusively on safety compliance. It is clear that the relationship in this study is still significant because safety performance also involves safety compliance.

Bayram (2018) studies more focusing towards management commitment relationship OSH and safety performance. The studies indicate that commitment to occupational safety should start with top management and extend to all members of the

organization. This commitment reflects how much top management prioritizes safety in decision-making and the assets allocated for it. The findings suggest that top management must show a strong dedication to safety. This commitment fosters healthy and safe working environments, enhances employee pleasure, and ultimately reduces the occurrence of workplace accidents and injuries when employees engage in safe behaviors. The statement from this research potrays a positive and significant relationship between management commitment and safety performance, at the same time it also emphasizes the need for good leadership as an example to subordinates.

2.4 Safety Knowledge

Safety knowledge equips crews with the skills and awareness needed to identify and mitigate potential hazards, directly enhancing their ability to maintain a safe working environment. This knowledge comes from experience, habits, and learning, all of which enhance workers' capability to identify hazards, avoid accidents, and minimize or get rid of the risks. Furthermore, it affects safety behavior and underscores the relationship between safety climate and overall safety performance (Fajar Sidiq & Rohman, 2023). Putra et al. (2022), knowledge, categorized by type and stages of difficulty in delivery, is divided into two dimensions: explicit and implicit knowledge. Explicit knowledge consists of factual, formal, and scientific information that is documented through data, reports, and books. In contrast, implicit knowledge is subjective, rooted in experience, and informal, lacking formal documentation. In his discussion stated that safety knowledge has a significant effect on safety performance. It indicates that safety knowledge can directly prevent work accidents in the workplace. To handle high value asset definitely its demand a crew that have sufficient skill together with sufficient knowledge to operate the asset complete with the sophitiscated

and sensitive system. Understanding the relationship between safety knowledge and safety performance is crucial for enhancing workplace safety measures and reducing accident rates.

Based on the statement by Putra at el. (2022), trained workers are obtained by attending a course that has been planned by their superiors for them and this is as explicit knowledge that applied to all workers. Implicit knowledge can be obtained through participation in training, whether individual training or collective training at the regiment level up to the formation level. The Army has evolved since its establishment in 1933 to meet the changing demands of its role, focusing more on developing intellectual capital. Intellectual capital comprises cognitive knowledge (know what), advanced skills (know how), an understanding of systems and creativity (know why), and self-motivated creativity (care why) (Training, 2005). From the Training (2005) , it can be seen that the army really emphasizes the application of knowledge in carrying out tasks, the crew not allowed to operate vehicles or assets until the crew is really qualified. Nevertheless, the army also enforces the crew to study safety knowledge that involves OSH to be implemented in the task so that safety performance exists in their work routine. This is clearly stated in K&KP TD (2023), apart from the Commanding Officer (CO), all levels of soldiers have responsibilities with the aim of giving responsibility to them not to add burden but to make soldiers feel valued and can help the regiment to ensure that there are no accidents at work.

From the statements in the study and the guidelines that have been issued by the army, it is a requirement for crews to have knowledge and this includes safety knowledge so that the execution of the tasks that be done comply with the requirements of the task and to avoid any accidents to the crew and assets. Putra at el. (2022) studies

emphasis on the important of the crews to know and understand the aims and so that it is in line with the target to be achieved. The study also found the need for crews to obtain knowledge through two ways, which is formally through the learning set in the service, while another way is based on the experience that gained through the work culture from the beginning to career advancement. While the army, through the Management Implementation Guidelines, clearly shows the army's commitment so that the crews be able to operate the equipment they must have sufficient knowledge, much more they be able to assess the next action if something happens. The knowledge that possessed by the crews is often through planning that has been planned according to the improvement of the crew's career as well as corresponding to the maturity of the crews in the service.

A study by Rosalita et al. (2015) explain that safety knowledge influence the relationship between safety management practices and safety performance. Their research revealed that while management implemented various safety practices, roles, and functions, these efforts did not sufficiently enhance employees' knowledge of safety procedures. As a result, employees demonstrated inadequate safety performance, particularly in terms of safe behavior and participation in safety-related activities. The relationship between safety knowledge and safety performance is a critical focus in OSH management. Safety knowledge encompasses the understanding of safety protocols, regulations, and procedures essential for minimizing workplace hazards (Indeed, 2025). This knowledge forms the foundation for safe behavior and practices within the army. The interplay between these two elements is pivotal: robust safety knowledge is necessary to ensure that employees are aware of potential risks and the correct measures to mitigate them, leading to enhanced safety performance. An opinion by Fajar Sidiq and Rohman (2023), their analysis reveals two distinct categories of

safety knowledge include accident records and safety regulations. Accident records are based on experiences that include information about causation and precursor events. In contrast, safety regulations are guidelines derived from established safety protocols aimed at ensuring worker health and safety. Both elements have been effectively integrated into military practices to reduce accident rates and enhance safety performance.

The researcher has made the study by Putra at al. (2022) as a good source because his study is about the link between safety knowledge and safety performance. His research revealed that safety knowledge significantly affects safety performance, indicating that it can directly prevent workplace accidents. Crews can identify sources of danger that pose a risk for accidents. This information can be delivered through training or mentoring processes that emphasize the value of occupational safety and health (OSH) among team members. The studies also demonstrate that as crew members' safety knowledge increases, so does their safety performance. Research results from Vinodkumar and Bhasi (2010) has a some complicated relationship where it stated that safety performance has two main mediators, namely safety knowledge and safety motivation. However, the results of testing the mediation effect revealed that safety knowledge serves as a distinct and clear contributor in the relationship between three major safety management practices and the two components of safety performance. The researcher feels that although the statement does not state clearly the distinguish relationship safety knowledge toward safety performance, but it is significant in strengthening the need for safety knowledge to safety performance. Safety knowledge cannot be put out of the context from supporting safety performance.

2.5 Safety Motivation

Studies involving safety motivation to improve safety performance among military personnel have been found to be quite limited. It must be acknowledged that safety motivation plays a vital aspect in improving safety performance within the army. Fariz and Haryanto (2023) organizations should foster safety motivation to enhance safety behavior, as a high level of motivation positively influences safety practices. When crews are motivated, they are more inclined to engage in proactive safety behaviors, such as identifying hazards, reporting near misses, and consistently following safety procedures. Understanding and enhancing safety motivation is essential for creating a sustainable and effective safety program that not only protects crews but also enhances operational efficiency.

Vinodkumar and Bhasi (2010) stated that safety motivation is a desire and willingness of individuals to follow safety procedures and take actions to ensure their own safety and the safety of others. As mentioned earlier, their findings suggest a somewhat convoluted relationship, indicating that safety performance is influenced by two key factors: safety knowledge and safety motivation, which act as determinants. Apart from that, Panuwatwanich (2016) studies found safety motivation elements influence the level of safety behaviour based on indicators such as supervisors' reactions, colleagues' responses, the likelihood of reducing accidents, and the impact on work pace. The studies describe motivation as a psychological process that encompasses a range of factors influencing the intensity, direction, initiation, and persistence of behavior. To achieve targeted safety performance results, safety motivation need to be integrated into the OSH management plan. Effective safety management practices should aim to enhance this factors.

The relationship between safety motivation and safety performance is a important part of study within army safety management. Safety motivation refers to the internal and external factors that drive soldiers or crews to comply safety protocols and prioritize safe behaviors in the workplace. High levels of safety motivation can lead to improved safety performance, characterized by reduced accidents, injuries, and near-misses. Panuwatwanich (2016) highlights the critical aspect of safety motivation in fostering positive safety behavior, which successively can lead to enhance safety outcomes (safety performance). His findings suggest a potential positive relationship between safety motivation and safety performance. The studies also demonstrate that safety motivation can lead to positive development in safety behaviour. This is primarily achieved by fostering a work environment where employees recognise that the urgency of workplace safety is valued and collectively supported by both their fellowships and top management.

Vinodkhumar and Bhasi (2010) also stated that safety motivation is part of the determinant of safety performance. Their research also demonstrated that viewpoint of safety management practices impact safety performance by affecting safety motivation. From that, since the previous discussion regarding safety knowledge is significant to safety performance, then the statement of safety motivation is also significant. This study also adds, these findings provide valuable guidance for both researchers and practitioners on identifying mechanisms to enhance workplace safety.

2.6 Related Underpinning Theories

2.6.1 Safety Climate Theory

The theory, introduced by Zohar in 1980, explains employees' collective thought of how safety management is applied in the workplace. This study applies Safety Climate Theory as it effectively explains how organizational culture and leadership, both highly influential in the military context that shape individual safety behaviors, ultimately contributing to improved safety performance in military operations. These perceptions indicate the priority given to safety within an organization compared to other priorities such as production and quality. Luo (2020) conducted comprehensive research and analysis on the dimensions of safety climate across various industries, resulting in a clear definition of enterprise safety climate. This analysis identifies three levels of safety climate: organizational, individual, and environmental. Safety climate encompasses the perspectives and beliefs of individuals regarding the organization's safety policies, safety services, safety management, organizational attitudes, and safety supervision.

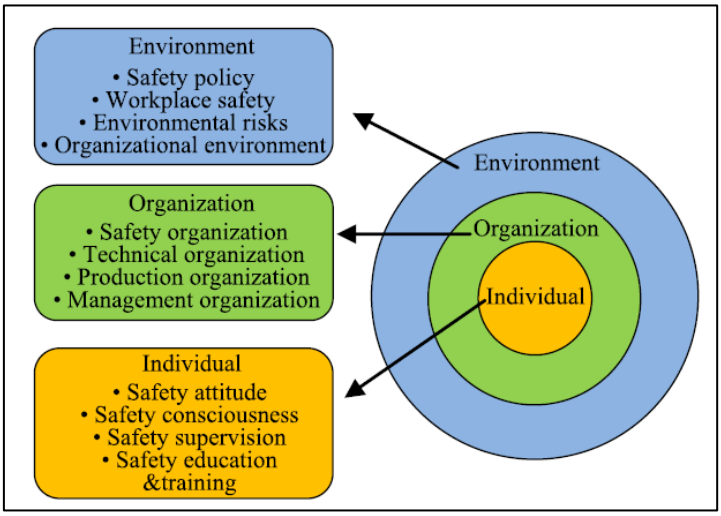

Figure 2.1
Dimension of the safety climate
Source: Safety Climate Theory, Zohar (1980)

The analysis includes insights from the organizational perspective, covering areas serving in policy-making, implementation, revision, and safety programs and procedures, managerial behavior, safety supervision, and the attitudes and behaviors related to safety within the organization (Zohar, 1980). Additionally, it takes into account the environmental perspective, which encompasses workplace risk levels, equipment, operational methods, and the overall work environment (Luo, 2020). From the dimension, Neal et al., (2000) found that safety climate influences individual safety behavior through safety knowledge and motivation as aligning with level variables such as in Table 2.1, overall dimensions from your Figure 2.1 can be mapping into three levels. Overall, this mapping highlights that improving safety performance requires an integrated approach, where leadership, training, motivation, and environmental support are aligned.

Table 2.1
Mapping of Safety Climate Dimension

Level	Item	Variables
Environmental	Engagement in safety-related discussions or activities	Safety Motivation
Organization	Management values and prioritizes safety	Management Commitment
	Supervisors' safety leadership and communication	Management Commitment
	Management's response to safety concerns	Management Commitment
	Availability of safety systems and procedures	Management Commitment
	Support for safety initiatives	Management Commitment
	Training and education on safety	Safety Knowledge
Individual	Knowledge of safety rules and procedures	Safety Knowledge
	Awareness of job hazards	Safety Knowledge
	Employee motivation to follow safety rules	Safety Motivation
	Personal responsibility for safety	Safety Motivation
	Perceived importance of safety	Safety Motivation

2.7 Summary

Safety performance is a critical measure within army, it encompasses the effectiveness of policies, procedures, and actions taken to assure the safety and well-being of the crews. Key factors influencing safety performance include management commitment, safety knowledge, and safety motivation. Management Commitment is a cornerstone of effective safety performance. This involves not only establishing robust safety policies and procedures but also actively participating in safety initiatives, providing necessary resources, and fostering a culture that prioritises safety. Safety Knowledge specify to the understanding and awareness crews have regarding safety practices, hazards, and protocols. Comprehensive safety training and continuous education are essential for equipping crews with the knowledge they need to execute their tasks safely. Safety Motivation is the internal drive that encourages crews to adhere to safety practices and strive for a safe working environment. Various factors influence safety performance, including management commitment and the perceived importance of safety within the army. When crews feel motivated, they are more likely to participate in safe behaviors, report hazards, and participate in safety programs. Zohar (1980) introduced Safety Climate Theory, which describes shared employee perceptions of how safety management is implemented in the workplace. This theory highlights the significance of management commitment, safety knowledge, and safety motivation as essential elements in addressing the root causes of safety issues, ultimately enhancing overall safety performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a more detail discussion of the research methods implemented. This chapter also cover the research framework, hypothesis, study design, definitions, methods of measuring dependent variable, data collection methods, sampling and analysis of the data obtained.

3.2 Research Framework

The structure of this study is oriented to two main elements, namely independent variable and dependent variable. The core of the independent variable includes commitment management, safety knowledge and safety motivation, while dependent variable is safety performance. The theoretical framework of the research is shown as follows:

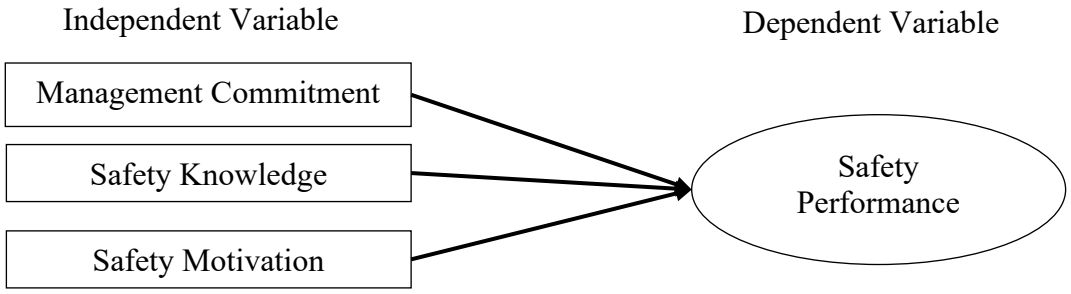

Figure 3.1
Research Framework

3.3 Research Hypotheses

The hypothesis was developed based on a thorough review of the existing literature discussed in Chapter Two and is aligned with the research questions and

objectives outlined in Chapter One. From the formation of the research framework, the researcher has established three (3) main hypotheses that need to be tested as follows:

H1: The relationship of management commitment and safety performance to armoured crew.

According to Jaaskelainen et al. (2022), the term safety performance specifically refers to occupational safety and health (OSH) performance, defined as the measurable results of an organization's management of OSH risks. OSH performance is assessed by evaluating the performance of both supervisors and employees. Cooper (2006) interpret management commitment as "engaging in and maintaining behaviors that help others achieve a goal." In his discussion, he provides compelling evidence that management support behaviors significantly impact employee safety behaviors, which in turn affect injury rates. From above references, management commitment significantly influences safety performance among soldiers (armoured vehicle crews) when leadership actively demonstrates support for safety through consistent behavior, training, and resource allocation and it fosters a strong safety culture among crew.

Jaaskelainen et al. (2022) define safety performance as the measurable outcomes of an organization's management of occupational safety and health (OSH) risks. This performance is evaluated by analyzing both supervisors' and employees' actions. Cooper (2006) describes management commitment as the engagement in and maintenance of behaviors that assist others in achieving a goal. He presents strong evidence that the behaviors of management support significantly influence employee safety behaviors, which subsequently affect injury rates.

As a result, it is stated that:

H1: There a significant relationship between management commitment to safety performance.

H2: The relationship of safety knowledge and safety performance

To perform the job safely, an individual must not only understand how to work safely but also possess the necessary skills to comply with safety procedures (Neal et al., 2000). According to Jaaskelainen et al. (2022), safety performance can provide valuable insights for internal analysis and decision-making. Through knowledge, employer and kraemployee able to make considerations and assessments when faced hazardous environment and avoid risky situation.

Knowing how to perform safely is essential for safe behaviors. Organizations must regularly train employees to keep their knowledge and skills up to date (Training Improvement Solutions, n.d.). As emphasized in Training (2005), the army's overall training efforts aim to enhance job performance and ensure that each soldier possesses the required attitude, skills, and knowledge to carry out their duties effectively. In fact, it is also emphasized that unit or regiment need to increase knowledge and skills of their soldiers in handling the incident and it should be one of their main objectives to prepared for any disasters or accidents (K&KP TD, 2023).

As a result, it is stated that:

H2: There a significant relationship between safety knowledge to safety performance.

H3: The relationship of safety motivation and safety performance

Safety motivation is the willingness of an individual to put effort into safety behaviours and the perceived importance of those behaviours (Neal & Griffin, 2006). Panuwatwanich (2016) emphasised that a blend of extrinsic and intrinsic safety motivation can result in positive changes in safety behaviour. This is largely achieved by fostering a work environment where employees feel that safety is valued and supported by both their colleagues and top management. When individuals are motivated, they are more likely to engage in safe practices, follow procedures, and encourage others to do the same.

In the military, The Army (2010) mentioned safety implication inherent in many aspects of procedural doctrine, there is usually need to be approved to be apply in tactics, techniques and procedures. To achieve a goal in this hierarchical organization, safety motivation refers to a personal's readiness to participate in safety-related activities and adhere to safe working practices (Bunner et al., 2018). Each soldier must cooperate in the job along with a safe atmosphere to attain the objectives set by the superiors.

As a result, it is stated that:

H3: There a significant relationship between safety motivation to safety performance.

3.4 Research Design

For the implementation of this study, the researcher has used the quantitative survey design as the main medium in unraveling each research question to see the extent of the significant influence and relationship between independent variable such as

commitment management, safety knowledge and safety motivation with the dependent variable which is the safety performance of the armoured vehicle crew in 3 KAD. The study carry out through survey questions distributed to 169 respondents from armoured vehicle crews at 3 KAD. It aims to take a closer look at the perception as an armoured vehicle operator of some issues that need to be considered in influencing the safety performance towards the workplace safety and health that is practiced.

3.5 Operational Definition

Safety Performance

Safety performance refers to the observable behaviors and outcomes related to safety compliance by following safety procedures and safety participation by voluntarily engaging in safety-related activities demonstrated by armoured vehicle crews during operations and training (Neal & Griffin 2006, Vinodkumar & Bhasi 2010).

Management Commitment

Management commitment is defined as the extent to which military leaders demonstrate visible support for safety, allocate sufficient resources, enforce safety policies, and actively participate in safety activities within the operational unit (Zohar 2000; Fernandez-Muniz et al. 2007).

Safety Knowledge

Safety knowledge is defined as the level of understanding among armoured vehicle crew members regarding safety rules, procedures, hazard identification and

emergency response relevant to their operational tasks (Neal et al., 2000; Vinodkumar & Bhasi, 2010).

Safety Motivation

Safety motivation refers to the crew's internal drive and willingness to prioritize safety, comply with procedures, and engage in safe behaviors, based on perceived importance and personal responsibility for safety outcomes (Neal & Griffin, 2006; Prussia et al., 2003).

3.6 Measurement of Variables/Instrumentation

Research instruments were formed through references to literature by previous researchers as shown in Table 2.1. The research questions were formed based on the meaning of the original questions in previous studies that have been adapted to meet the needs of all the variables need to be studied. The source of the questions used is maintain the purpose of the previous survey to ensure that it meets the criteria of the study in terms of reliability and validity for each questionnaire. Validation for the questionnaire was made by Dr. Siti Hawa binti Harith, Senior Lecturer in Human Resources Department, UUM . Table 3.1 shows a summary of the measurement of items and scales in the questionnaire study:

Table 3.1
Questionnaire Development

Title Paper	Original Question	Modify	Bahasa Melayu
	DV: Safety Performance		
Organizational Emotional Capability Perspective: Research on the Impact of Psychological Capital on Enterprise Safety Performance. Peng et al (2022)	I will use the necessary safety equipment in strict accordance with the relevant regulation	I will use the necessary safety equipment in strict accordance with the relevant regulation	Saya akan menggunakan peralatan keselamatan yang diperlukan mengikut peraturan yang ditetapkan
	I follow the correct security rules and procedures at work	I follow the correct security rules/ procedures at work	Saya mengikut peraturan/ prosedur keselamatan yang betul di tempat kerja
	I only work if I am sure it is safe	I only work if I am sure it is safe	Saya hanya bekerja jika saya yakin ia selamat
	Sometimes I don't follow the correct workflow because of a lack of time or familiarity with the work	Sometimes I don't follow the correct workflow because of a lack of time or familiarity with the work	Kadangkala saya tidak mengikut aliran kerja yang betul kerana kekurangan masa atau menjadi kebiasaan dengan kerja itu
	I consciously participate in safety training, take the initiative to understand security knowledge or information	I am participate in safety training, take the initiative to understand security knowledge or information	Saya menyertai latihan keselamatan, mengambil inisiatif untuk memahami pengetahuan atau maklumat tentang keselamatan
	If I find any security-related issues in my company, I always point them out to management	If I find any security-related issues in my regiment, I always point them out to regiment management	Jika saya menemui sebarang isu berkaitan keselamatan dalam rejimen saya, saya sentiasa memaklumkan kepada pihak pengurusan rejimen
	I encourage my colleagues to work safely and proactively help them do their safety work well	I encourage my colleagues to work safely/help them do their safety work well	Saya menggalakkan rakan sekerja saya untuk bekerja dengan selamat/membantu mereka melakukan kerja keselamatan mereka dengan baik
	I volunteer for task or activities that will help improve safety in the workplace	I volunteer for task/activities that will help improve safety in the workplace	Saya secara sukarela melaksana tugas/aktiviti yang akan membantu meningkatkan keselamatan di tempat kerja
	IV 1: Management Commitment		
Safety Management Practice & safety behaviour: Assesing the mediating role of safety knowledge and motivation. Vinodkumar & Bhasi (2010)	Safety issues are given high priority in training program	Safety issues are given high priority in training	Isu keselamatan diberi keutamaan tinggi dalam latihan
	Safety rules and procedures are strictly followed by the management	Safety rules and procedures are strictly followed by the regiment	Peraturan dan prosedur keselamatan dipatuhi dengan ketat oleh rejimen
	Corrective action is always taken when the management is told about unsafe practices	Corrective action is always taken when the regiment is told about unsafe practices	Tindakan pembetulan sentiasa diambil apabila rejimen diberitahu tentang amalan tidak selamat
	In my workplace managers/supervisors do not show interest in the safety of workers	In my workplace Commanding Officer (CO)/Officer in Command (OC) do not show interest in the safety of workers	Di tempat kerja saya Pegawai Memerintah (CO)/Pemimpin Skuadron (OC) tidak menunjukkan minat terhadap keselamatan pekerja

Table 3.1 (continued)

	Management consider safety to be equally important as production	The regiment consider safety to be equally important as task performing	Rejimen menganggap keselamatan adalah sama pentingnya dengan melaksanakan tugas
	Members of management do not attend safety meeting	Regiment management do not attend safety meeting/discussion	Pihak pengurusan rejimen tidak menghadiri mesyuarat/perbincangan keselamatan
	I feel that management is willing to compromise on safety for increasing production	I feel that the regiment management is willing to compromise on safety for increasing tasking	Saya merasakan bahwa pihak pengurusan rejimen bersedia untuk berkompromi dengan keselamatan untuk meningkatkan penugasan
	When near-miss accident is reported, my management act quickly to solve the problem	When near-miss accident is reported, regiment management act quickly to solve the problem	Apabila kemalangan nyaris dilaporkan, pihak pengurusan rejimen bertindak cepat untuk menyelesaikan masalah tersebut
	My company provides sufficient personal protective equipment's for the workers	The regiment provides sufficient personal gear equipment's for the crew (helmet, glove, goggle)	Rejimen menyediakan peralatan peribadi yang mencukupi untuk kru (topi keledar, sarung tangan, goggle)
	IV 2: Safety Knowledge		
Safety Management Practice & safety behaviour: Assesing the mediating role of safety knowledge and motivation. Vinodkumar & Bhasi (2010)	I know how to perform my job in a safe manner	I know how to perform my job in a safe manner	Saya tahu cara melaksanakan tugas saya dengan selamat
	I know how to use safety equipments and standard work procedure	I know how to operate armoured vehicle and standard work procedure	Saya tahu cara mengendalikan kenderaan perisai dan prosedur kerja standard
	I know how to maintain or improve workplace health and safety	I know how to maintain the armoured vehicle safety	Saya tahu bagaimana untuk mengekalkan keselamatan kenderaan perisai
	I know how to reduce the risk of accidents and incidents in the workplace	I know how to reduce the risk of accidents/ incidents while operating the armoured vehicle	Saya tahu bagaimana untuk mengurangkan risiko kemalangan/insiden semasa mengendalikan kenderaan perisai
	I know what are the hazards associated with my jobs/the necessary precaution to be taken while doing my job	I know what are the hazards associated with my jobs/the necessary precaution to be taken while doing my job	Saya tahu apakah bahaya yang berkaitan dengan pekerjaan saya/ langkah berjaga-jaga yang perlu diambil semasa melakukan kerja saya
	I don't know what to do if a potential hazard is noticed in the workplace	I don't know what to do if a potential hazard is noticed in the workplace	Saya tidak tahu apa yang perlu dilakukan jika potensi bahaya dikesan ditempat kerja

Table 3.1 (continued)

IV 3: Safety Motivation			
Safety Management Practice & safety behaviour: Assesing the mediating role of safety knowledge and motivation. Vinodkumar & Bhasi (2010)	I feel that it is important to maintain safety at all times	I feel that it is important to maintain safety at all times	Saya rasa adalah penting untuk mejaga keselamatan pada setiap masa
	I believe that safety at workplace is a very important issue	I believe that safety while performing the job is a very important issue	Saya percaya bahwa keselamatan semasa melaksanakan kerja adalah isu yang sangat penting
	I feel that it is necessary to put effort to reduce accidents and incident at workplace	I feel that it is necessary to put effort to reduce accidents/incident while performing job	Saya rasa perlu berusaha untuk mengurangkan kemalangan/ insiden semasa menjalankan kerja
	I believe that safety that can be compromised for increasing production	I believe that safety can be compromised for increasing task	Saya percaya keselamatan boleh dikompromi untuk meningkatkan tugas
	I feel that it is important to encourage others to use safe practices	I feel that it is important to encourage others to use safe practices	Saya merasakan adalah penting untuk menggalakkan orang lain menggunakan amalan selamat
	I feel that it is important to promote safety programmes	I feel that it is important to promote safety programmes	Saya merasakan adalah penting untuk mempromosikan program keselamatan

3.7 Data Collection

The survey for the research done by distribute a questionnaire to the aim respondent, the respondent is from military personnel with specific trait as a crew for the armoured vehicle. The questionnaire is develop by referring from previous researcher with the connection to variables in this study. The study employs a data collection method that involves acquiring information directly from primary data sources, which is the filling of answers by crews. Pilot test implemented at early of April to assess their reliability and scalability. Distribution of questionnaires to armoured crew done face-to-face at the camps involved in mid-April and this process is expected to take around three weeks. In addition, secondary data was also collected through cross-checking of relevant documents including vehicle technical inspection feedback as well as the regiment 's Standard Operating Procedure (SOP).

3.8 Sampling

Population

According to Morissan from Gramedia Blog (n.d.), population is concluded as a group of subjects, variables, concepts or phenomena. This study focuses on armoured vehicle crews, who typically operate these vehicles, sparking the researcher's interest in ongoing testing and further investigation. Each member of the population can be examined to find out the nature of the population that has a relationship. In this field study, the term "population" refers to the specific group directly involved in the research which is armoured vehicle crew. The total population is as many as 299 armoured vehicle crews in 3 KAD involved in this study. This figure is obtained based on the number of positions for each vehicle in the 3 KAD as shown in the Table 3.2.

Table 3.2
Armoured Crew in 3 KAD

Variants	**Total Vehicle**	**Total Crew**
Armoured Command Vehilce (ACV)	6	18
Armoured Fighting Vehicle (AFV) 30mm	34	102
Armoured Vehicle Signal (AVS)	1	2
Surveillance (AFV Surv)	12	24
AFV – ATGW	24	72
Armoured Reconnaissance Vehicle (ARV)	24	72
Ambulance	3	9
Total	**104**	**299**

Source: Armoured Director Visit to 3 KAD on Nov 24

Sampling Frame

Sekaran (2016) stated that a sample is a subset of the target population, consisting of individuals selected at random. Since the target group is armoured vehicle crews who are trained and skilled in operating specific asset and equipment, whose operating armoured vehicles at 3 KAD.

Unit of Analysis

The unit of analysis refers to the primary entity being examined in the study. It represents the 'what' or 'whom' under investigation. This unit can consist of individuals (the most common form), groups, social organizations, or social artifacts. (What is The Unit of Analysis, 2012). The focus of the study is military personal with a traits of armoured vehicle crew in 3 KAD where they are are trained and qualified to operate an armoured vehicle owned by the army.

Sample Size

The total number of crews in the 3 KAD is around 299 members, which makes half of the entire population of the regiment. Based on Krejcie and Morgan's (1970) table, the appropriate sample size is targeted at a total of 169 respondents.

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Figure 3.2
Krejcie and Morgan Table

Sampling Procedure

Probability sampling designs fit into the categories and simple random sampling technique apply to gain the information. The crew that involved is from 3 KAD which are currently on duty in the regiment. Out of all the members in the 3 KAD, the researcher targeted only the members of the traits armoured vehicle crews which are around 169 members. Reason for sampling is due to the current assignments in the regiment, operations, courses and other military administrative it is difficult to get the entire crew of the armoured vehicle.

3.9 Data Collection Procedures

The data collection method used in the study is through the acquisition of data directly from primary data sources, which is the filling of answers by armoured vehicle crews at 3 KAD. The information collection authorization letter forwarded through the researcher after obtaining the information access authorization letter from the administrator of the OYAGSB, Universiti Utara Malaysia (UUM) to 3 KAD to obtain approval to carry out the pilot study and subsequently with the actual study. Once approval is obtained, some preliminary statistics regarding the total population of the crew were collected by the researcher. The purpose is to obtain this statistical information to obtain a sample size among armoured vehicle crews in selected unit.

3.10 Techniques of Data Analysis

This study used the SPSS Version 29 program to analyze the data obtained. These data were analyzed using a number of specific statistical tests against the hypotheses

formed and the range of scales used. The analysis involve reliability Testing Cronbach's Alpha, Demography and Descriptive and Inferial Statistic.

3.11 Pilot Test

Mocorro (2017) emphasizes that the validity and reliability of an instrument or questionnaire are crucial factors in research. These aspects can often be evaluated through a pilot study, which is a preliminary investigation conducted before a larger project. The primary intent of a pilot study is to evaluate elements of the research design and allow for necessary adjustments before finalizing it. Conducting a pilot study offers several advantages, including early identification of potential failures in the main project, insights into any research procedures that were not followed, and assessments of whether the proposed method or questionnaire is appropriate for the respondents.

For this research, a total of 30 respondents consisting of soldiers currently taking courses at the 3 KAD were selected to answer the questionnaire. The purpose was to confirm the respondents' understanding of the questions, assess the quality of the questions and try to improve thm if necessary. Apart from that it helps ensure the measurement tools are accurate and consistent which can improve validity and reliability later on. Pilot test also allow researcher a chance to practice and refine the approach to deal with respondent.

Table 3.3
Reliability Coefficient of Questionnaire

Variable	Cronbach Alfa	Number of Item
Safety Performance	0.792	8
Management Commitment	0.828	9
Safety Knowledge	0.719	6
Safety Motivation	0.868	6

To assess the internal consistency of a research instrument, Cronbach's Alpha is a commonly used method for evaluating reliability. In quantitative studies, it is essential for researchers to assess the reliability and validity of their instruments, as this process helps ensure the quality of the study and facilitates the achievement of research objectives (Mat Nawi et al., 2020). The reliability analysis results can be interpreted according to the Strength Rule of Thumb, as outlined in Table 3.4.

Table 3.4
Strength of Association Determination

Alfa Coefficient Range	Strenght of Association
< 0.6	Poor
0.6 to < 0.7	Moderate
0.7 to < 0.8	Good
0.8 to < 0.9	Very Good
0.9 >	Excellent

A Five Point Likert Scale is a widely used psychometric tool in surveys for measuring attitudes, perceptions, or opinions. Respondents express their level of agreement with a statement by selecting from five options, which typically range from "Strongly Disagree" to "Strongly Agree." This scale provides a balance between granularity and simplicity, making it easy to analyze while capturing nuanced responses (Eva et al., 2020).

Table 3.5
Qualitative Interpretation of 5 Point Likert Scale Measurement

Likert-Scale Description	Likert-Scale
Strongly disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly agree	5

3.12 Summary

In general, this chapter explains and breaks down the theory regarding the method to conduct the study to achieve the objective of the study that has been outlined. In addition to this, this chapter also explains comprehensively about the research instruments used to obtain feedback, which are then processed using SPSS 29 for the testing process.

CHAPTER FOUR

ANALYSIS AND FINDING

4.1 Introduction

This chapter presents the research findings, starting with an overview of the respondents' profiles and then outlining the study's key results. The research aims to achieve three objectives: first, to identify a significant relationship between management commitment and safety performance; second, to establish a significant relationship between safety knowledge and safety performance; and third, to determine a significant relationship between safety motivation and safety performance. This section includes an analysis of the respondents' demographic characteristics, followed by assessments of reliability and normality. It then presents the results of factor analysis, descriptive statistics, correlation analysis and multiple regression to explore the relationships among the variables. Each response, based on a Likert scale was carefully reviewed during entry to prevent input errors. Data analysis was conducted using SPSS version 29 to meet the study's objectives. The findings are displayed in tables, and the chapter concludes with a summary of the study's conclusions.

4.2 Demographic Respondent

This section provide demographic data on the respondents where the respondent rate for this research was 100%, this high level of participation enhances the reliability and representativeness of the study findings. All questionnaires were physically distributed and completed with responses manually entered into Microsoft Excel. There are four demographic information such as rank, age, education level and working

experience. The demographic data is presented in Table 4.1, organized by the numbers and percentages of respondents.

Table 4.1
Demographic Respondent

Demographic	Frequency	Percentage
Rank		
Tpr/LKpl	40	23.5
Kpl	92	54.1
Sjn/SSjn	21	12.4
Lt M/Lt/Kapt	17	10.0
Age		
< 25 years old	16	9.4
25 - 35 years old	136	80.0
36 - 45 years old	18	10.6
Education Level		
≤ SPM	148	87.1
STPM / Diploma	5	2.9
Bachelor Degree	17	10.0
Working Experience		
< 1 year	8	4.7
1 - 7 years	75	44.1
8 - 15 years	68	40.0
> 15 years	19	11.2

As for respondents' profile according to rank shows that Tpr/LKpl, which is 23.5% respondent (n = 40), Kpl, which is 54.1% respondent (n = 92), Sjn/SSjn, which is 12.4% respondent (n = 21), and Lt M/Lt/Kapt, which is 10.0% respondent (n = 17). The distribution of age group showed that 9.4% respondent (n = 16) was aged below 25 years old, 80.0% respondent (n = 136) was aged 25 - 35 years old, and 10.6% respondent (n = 18) was aged 36 - 45 years old. Most the highest education level of respondents are 87.1% (n = 148) at the SPM or lower level. Followed by 10.0% (n = 17) at the Bachelor Degree holders level, and 2.9% (n = 5) at the STPM / Diploma holders level. As for respondents' profile according to working experience showed that 4.7% respondent (n = 8) are below 1 year, 44.1% respondent (n = 75) are 1 - 7 years,

40.0% respondent (n = 68) are 8 - 15 years, and 11.2% respondent (n = 19) are more than 15 years.

4.3 Reliability Analysis

The Cronbach Alpha values for safety performance, management commitment, safety knowledge, and safety motivation among the crew of armoured vehicles are presented in Table 4.2, supported by the reliability results.

Table 4.2
Reliability Analysis

Variables	Cronbach's Alpha	No of items
Safety performance	0.773	8
Management commitment	0.721	9
Safety knowledge	0.733	6
Safety motivation	0.727	6

The Cronbach's alpha value for the dependent variable, safety performance, is 0.773. Cronbach's Alpha for independent variable, which is management commitment, safety knowledge, and safety motivation are 0.721, 0.733, and 0.727 respectively. The table of Cronbach's Alpha shows that most variables have values greater than 0.7, indicating that the questions exhibit acceptable to excellent reliability for further analysis.

4.4 Normality Analysis

Skewness and Kurtosis

The outcome of the normalization of the data based on the Skewness and Kurtosis statistical tests are shown in Table 4.3.

Table 4.3:
Normality Analysis

Variables	Skewness	Kurtosis
Safety performance	-.203	.159
Management commitment	.236	-.114
Safety knowledge	.493	-.236
Safety motivation	.305	-1.238

The statistical analysis shown in Table 4.3 reveals that the study variables are normally distributed, with mean test results fall within ± 2 standard deviations (Universiti of Cambridge, MRC CBU Wiki, n.d.). The skewness values range from -0.203 to 0.493, while the kurtosis values range from -1.238 to 0.159. These results suggest that the data exhibit skewness and kurtosis, demonstrating significant normality for safety performance, management commitment, safety knowledge, and safety motivation. Consequently, the data in this study are appropriate for further analysis.

Histogram

The histogram in Figure 4.1 indicates that the study sample follows a normal distribution, as evidenced by the bell-shaped curve. Thus, the assumption of normality is satisfied.

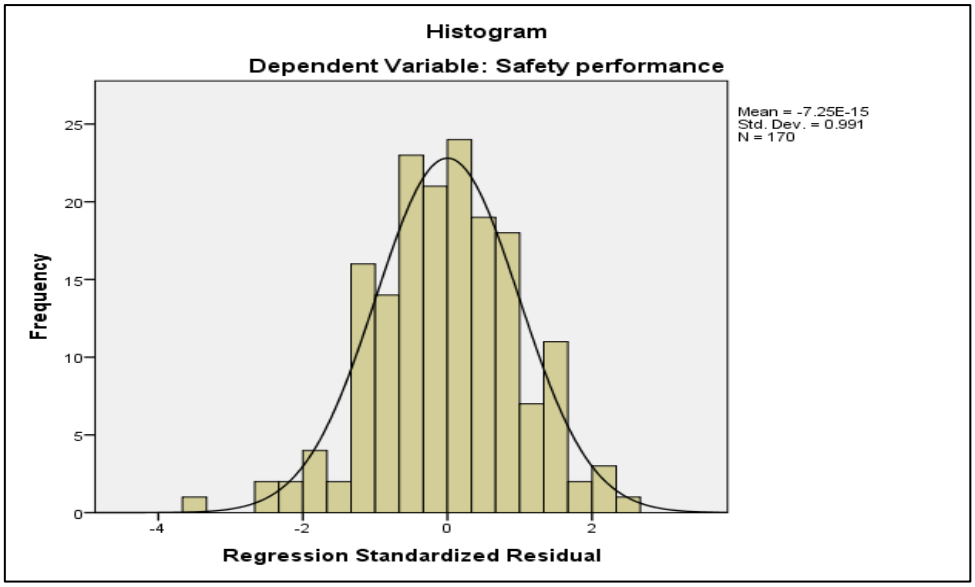

Figure 4.1
Histogram based on Standardized Residuals

4.5 Factor Analysis Results

Table 4.4 indicates that the KMO values range from 0.724 to 0.792. Specifically, the KMO for safety performance is 0.724, for management commitment it is 0.731, for safety knowledge it is 0.792, and for safety motivation it is 0.741. The explained variances range from 33.32% to 57.31%. Since all KMO values exceed the acceptable threshold of 0.50, they are considered satisfactory. Additionally, the Bartlett's Test of Sphericity (BtoS) indicates that all variable values are significant, with p values less than 0.01.

Table 4.4:
Result of Factor Analysis

Variables	No of item	KMO Value	Bartlett's Test of Sphericity	Eigen value	Variance explain	Sig. P
Safety performance	8	.724	480.835	3.386	42.324	.000
Management commitment	9	.731	359.053	2.999	33.323	.000
Safety knowledge	6	.792	504.985	3.439	57.313	.000
Safety motivation	6	.741	519.903	3.309	55.142	.000

*** Kaiser-Meyer-Olkin Index ≥ 0.50 shows that the sampling is adequate for Factor Analysis.

*** Variance percentage shows the total variance percentage for the components with eigenvalues ≥ 1.0

4.6 Descriptive Analysis

Safety Performance

In this research, the safety performance among crew armoured vehicle is measured by eight (8) items. One negative items expressed in negative form (*) were recoded before analysis to provide an accurate representation of safety performance. Table 4.8 shows that seven (7) items received a very high score, while the remaining one (1) item attained a high score value. The item that indicates the highest score is '*I will use the necessary safety equipment in strict accordance with the relevant regulation.*' (*M* = 4.44, SD = 0.532) and is followed by '*I follow the correct security rules/ procedures at work.*' (*M* = 4.43, SD = 0.520), '*I encourage my colleagues to work safely/help them do their safety work well.*' (*M* = 4.42, SD = 0.529), '*I volunteer for task/activities that will help improve safety in the workplace.*' (*M* = 4.41, SD = 0.516), '*If I find any security-related issues in my regiment, I always point them out to regiment management.*' (*M* = 4.38, SD = 0.543), '*I am participate in safety training, take the initiative to understand security knowledge or information.*' (*M* = 4.26, SD = 0.493), '*I only work if I am sure it is safe.*' (*M* = 4.23, SD = 0.635), and '*Sometimes I don't follow the correct workflow because of a lack of time or familiarity with the work.**' (*M* = 3.59, SD = 0.854). Overall, the score of safety performance (*M* = 4.27, SD = 0.366) is at the very high level.

Table 4.5:
Safety Performance

No	Statements	SD	D	N	A	SA	Mean	SD
B1	I will use the necessary safety equipment in strict accordance with the relevant regulation	0 (0.0)	0 (0.0)	3 (1.8)	90 (52.9)	77 (45.3)	4.44	.532
B2	I follow the correct security rules/ procedures at work	0 (0.0)	0 (0.0)	2 (1.2)	93 (54.7)	75 (44.1)	4.43	.520
B3	I only work if I am sure it is safe	0 (0.0)	2 (1.2)	13 (7.6)	99 (58.2)	56 (32.9)	4.23	.635
*B4	Sometimes I don't follow the correct workflow because of a lack of time or familiarity with the work	25 (14.7)	66 (38.8)	63 (37.1)	16 (9.4)	0 (0.0)	3.59	.854
B5	I am participate in safety training, take the initiative to understand security knowledge or information	0 (0.0)	0 (0.0)	4 (2.4)	117 (68.8)	49 (28.8)	4.26	.493
B6	If I find any security-related issues in my regiment, I always point them out to regiment management	0 (0.0)	0 (0.0)	5 (2.9)	96 (56.5)	69 (40.6)	4.38	.543
B7	I encourage my colleagues to work safely/help them do their safety work well	0 (0.0)	1 (0.6)	0 (0.0)	96 (56.5)	73 (42.9)	4.42	.529
B8	I volunteer for task/activities that will help improve safety in the workplace	0 (0.0)	0 (0.0)	2 (1.2)	97 (57.1)	71 (41.8)	4.41	.516
	Overall						**4.27**	**.366**

*Negative item

(Level: Very low = 1.00 – 1.80, Low = 1.81 – 2.60, Moderate = 2.61 – 3.40, High = 3.41 – 4.20, Very high = 4.21 - 5.00)

Management Commitment

In this research, the management commitment among crew armoured vehicle is measured by nine (9) items. Three negative items, indicated in negative form (*), were recorded before the analysis to provide an accurate representation of management commitment. Table 4.9 indicates that six (6) items had a very high score while the

other three (3) items have a high score value. The item that indicates the highest score is '*Safety issues are given high priority in training.*' (*M* = 4.48, SD = 0.535) and is followed by '*Safety rules and procedures are strictly followed by the regiment.*' (*M* = 4.44, SD = 0.521), '*The regiment consider safety to be equally important as task performing.*' (*M* = 4.35, SD = 0.588), '*Corrective action is always taken when the regiment is told about unsafe practices.*' (*M* = 4.29, SD = 0.538), '*When near-miss accident is reported, regiment management act quickly to solve the problem.*' (*M* = 4.28, SD = 0.588), '*The regiment provides sufficient personal gear equipment's for the crew (helmet, glove, goggle).*' (*M* = 4.24, SD = 0.693), '*In my workplace Commanding Officer (CO)/Officer in Command (OC) do not show interest in the safety of workers.**' (*M* = 3.74, SD = 0.773), '*Regiment management do not attend safety meeting/discussion.**' (*M* = 3.51, SD = 0.707), and '*I feel that the regiment management is willing to compromise on safety for increasing tasking.*' (*M* = 3.46, SD = 0.822). Overall, the score of management commitment (*M* = 4.09, SD = 0.361) is at the high level.

Table 4.6:
Management Commitment

No	Statements	SD	D	N	A	SA	Mean	SD
C1	Safety issues are given high priority in training	0 (0.0)	0 (0.0)	3 (1.8)	83 (48.8)	84 (49.4)	4.48	.535
C2	Safety rules and procedures are strictly followed by the regiment	0 (0.0)	0 (0.0)	2 (1.2)	92 (54.1)	76 (44.7)	4.44	.521
C3	Corrective action is always taken when the regiment is told about unsafe practices	0 (0.0)	0 (0.0)	7 (4.1)	107 (62.9)	56 (32.9)	4.29	.538
*C4	In my workplace Commanding Officer (CO)/Officer in Command (OC) do not show interest in the safety of workers	27 (15.9)	78 (45.9)	58 (34.1)	7 (4.1)	0 (0.0)	3.74	.773

Table 4.6 (continued)

C5	The regiment consider safety to be equally important as task performing	0 (0.0)	0 (0.0)	10 (5.9)	91 (53.5)	69 (40.6)	4.35	.588
*C6	Regiment management do not attend safety meeting/discussion	10 (5.9)	78 (45.9)	71 (41.8)	11 (6.5)	0 (0.0)	3.51	.707
*C7	I feel that the regiment management is willing to compromise on safety for increasing tasking	14 (8.2)	72 (42.4)	64 (37.6)	19 (11.2)	1 (0.6)	3.46	.822
C8	When near-miss accident is reported, regiment management act quickly to solve the problem	0 (0.0)	1 (0.6)	9 (5.3)	101 (59.4)	59 (34.7)	4.28	.588
C9	The regiment provides sufficient personal gear equipment's for the crew (helmet, glove, goggle)	0 (0.0)	3 (1.8)	16 (9.4)	88 (51.8)	63 (37.1)	4.24	.693
	Overall						**4.09**	**.361**

*Negative item

(Level: Very low = 1.00 – 1.80, Low = 1.81 – 2.60, Moderate = 2.61 – 3.40, High = 3.41 – 4.20, Very high = 4.21 - 5.00)

Safety Knowledge

In this research, the safety knowledge among crew armoured vehicle is measured by six (6) items. One negative component expressed in negative form (*) was recorded before analysis to provide an accurate depiction of safety knowledge. Table 4.10 indicates that five (5) components had a very high score while the other one (1) components have a high score value. The component that indicates the highest score is '*I know how to perform my job in a safe manner.*' (M = 4.38, SD = 0.534) and is followed by '*I know how to operate armoured vehicle and standard work procedure.*' (M = 4.38, SD = 0.521), '*I know what are the hazards associated with my jobs/the necessary precaution to be taken while doing my job.*' (M = 4.28, SD = 0.522), '*I know*

how to reduce the risk of accidents/ incidents while operating the armoured vehicle.' (*M* = 4.27, SD = 0.508), '*I know how to maintain the armoured vehicle safety.*' (*M* = 4.26, SD = 0.517), and '*I don't know what to do if a potential hazard is noticed in the workplace.**' (*M* = 3.64, SD = 0.819). Overall, the score of safety knowledge (*M* = 4.20, SD = 0.380) is at the high level.

Table 4.7:
Safety Knowledge

No	Statements	SD	D	N	A	SA	Mean	SD
D1	I know how to perform my job in a safe manner	0 (0.0)	0 (0.0)	4 (2.4)	97 (57.1)	69 (40.6)	4.38	.534
D2	I know how to operate armoured vehicle and standard work procedure	0 (0.0)	0 (0.0)	3 (1.8)	100 (58.8)	67 (39.4)	4.38	.521
D3	I know how to maintain the armoured vehicle safety	0 (0.0)	0 (0.0)	6 (3.5)	113 (66.5)	51 (30.0)	4.26	.517
D4	I know how to reduce the risk of accidents/ incidents while operating the armoured vehicle	0 (0.0)	0 (0.0)	5 (2.9)	114 (67.1)	51 (30.0)	4.27	.508
D5	I know what are the hazards associated with my jobs/the necessary precaution to be taken while doing my job	0 (0.0)	0 (0.0)	6 (3.5)	111 (65.3)	53 (31.2)	4.28	.522
*D6	I don't know what to do if a potential hazard is noticed in the workplace	23 (13.5)	75 (44.1)	60 (35.3)	11 (6.5)	1 (0.6)	3.64	.819
	Overall						**4.20**	**.380**

*Negative item

(Level: Very low = 1.00 – 1.80, Low = 1.81 – 2.60, Moderate = 2.61 – 3.40, High = 3.41 – 4.20, Very high = 4.21 - 5.00)

Safety Motivation

In this research, the safety motivation among crew armoured vehicle is measured by six (6) items. One negative component expressed in negative form (*) was recorded before analysis to provide an accurate representation of safety motivation. Table 4.11

indicates that five (5) components had a very high score while the other one (1) components have a high score value. The component that indicates the highest score is '*I believe that safety while performing the job is a very important issue.*' (*M* = 4.49, SD = 0.501) and is followed by '*I feel that it is important to promote safety programmes.*' (*M* = 4.46, SD = 0.500), '*I feel that it is necessary to put effort to reduce accidents/incident while performing job .*' (*M* = 4.44, SD = 0.521), '*I feel that it is important to maintain safety at all times.*' (*M* = 4.44, SD = 0.497), '*I feel that it is important to encourage others to use safe practices.*' (*M* = 4.39, SD = 0.501), and '*I believe that safety can be compromised for increasing task.**' (*M* = 3.53, SD = 0.607). Overall, the score of safety motivation (*M* = 4.29, SD = 0.369) is at the very high level.

Table 4.8:
Safety Motivation

No	Statements	SD	D	N	A	SA	Mean	SD
E1	I feel that it is important to maintain safety at all times	0 (0.0)	0 (0.0)	0 (0.0)	96 (56.5)	74 (43.5)	4.44	.497
E2	I believe that safety while performing the job is a very important issue	0 (0.0)	0 (0.0)	0 (0.0)	86 (50.6)	84 (49.4)	4.49	.501
E3	I feel that it is necessary to put effort to reduce accidents/incident while performing job	0 (0.0)	0 (0.0)	2 (1.2)	92 (54.1)	76 (44.7)	4.44	.521
*E4	I believe that safety can be compromised for increasing task	4 (2.4)	88 (51.8)	72 (42.4)	6 (3.5)	0 (0.0)	3.53	.607
E5	I feel that it is important to encourage others to use safe practices	0 (0.0)	0 (0.0)	1 (0.6)	102 (60.0)	67 (39.4)	4.39	.501
E6	I feel that it is important to promote safety programmes	0 (0.0)	0 (0.0)	0 (0.0)	92 (54.1)	78 (45.9)	4.46	.500
	Overall						**4.29**	**.369**

*Negative item

(Level: Very low = 1.00 – 1.80, Low = 1.81 – 2.60, Moderate = 2.61 – 3.40, High = 3.41 – 4.20, Very high = 4.21 - 5.00)

4.7 Correlation Analysis

Correlation analysis examines the relationship between the dependent variable and the independent variable, emphasized the direction, significance, and strength of their association in this study. The results of the Pearson Correlation are presented in Table 4.9.

Table 4.9:

Pearson Correlation Coefficient Analysis

	Safety performance	**Management commitment**	**Safety knowledge**	**Safety motivation**
Safety performance	1	.652**	.484**	.412**
Management commitment	.652**	1	.468**	.383**
Safety knowledge	.484**	.468**	1	.326**
Safety motivation	.412**	.383**	.326**	1

** $p < 0.01$

Table 4.9 on Pearson Correlation Coefficient matrix shows that management commitment ($r = 0.652$, $p < 0.01$), safety knowledge ($r = 0.484$, $p < 0.01$), and safety motivation ($r = 0.412$, $p < 0.01$) are correlated positively with the safety performance among crew armoured vehicle. Hence, the overall correlation analysis relationship with all variables is significant.

4.8 Multiple Regression

A multiple linear regression analysis was conducted using three key predictive variables: management commitment, safety knowledge, and safety motivation. The results indicated that the safety performance prediction model was significant [$F(3, 166) = 52.296$, $p < 0.05$], with an R-squared value of 0.486. This means that the model explains 48.6% of the variance in safety performance.

Table 4.10:
Coefficient Analysis For Safety Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. P
		B	Std. Error	Beta		
1	(Constant)	.737	.299		2.453	.015
	Management commitment	.505	.066	.499	7.610	.000
	Safety knowledge	.192	.062	.200	3.118	.002
	Safety motivation	.154	.061	.156	2.543	.012
a. Dependent Variable: Safety performance						
R-square = 0.486, F(3, 166) = 52.296, Sig. F = 0.000						

Each predictor is statistically significant at $p < 0.05$, with management commitment being the strongest predictor (highest beta and t-value)

The model shows: $R^2 = 0.486$, indicating that 48.6% of the variance in safety performance can be explained by the three predictors, suggesting that these factors are meaningful contributors to safety performance in this context. The overall regression model is statistically significant: $F(3, 166) = 52.296$, $p < 0.001$, this confirms that, collectively management commitment, safety knowledge and safety motivation significantly predict safety performance.

The results show a significant relationship between management commitment and safety performance, $\beta = 0.499$, $t\ (166) = 7.610$, $p < 0.01$. There is also a significant relationship between safety knowledge and safety performance, $\beta = 0.200$, $t\ (166) = 3.118$, $p < 0.01$. There is also a significant relationship between safety motivation and safety performance, $\beta = 0.156$, $t\ (166) = 2.543$, $p < 0.05$. Based on the results, hypotheses alternative one, two, and three are accepted in this study. Among the beta values, management commitment is the highest (0.499), which indicates it is the most important factor that influences the safety performance among crew armoured vehicle. Follow by safety knowledge factors (0.200), and safety motivation factors (0.156). All three independent variables are statistically significant contributors to the model.

The results indicate that greater management attention to safety, improved safety knowledge, and stronger personal safety motivation all lead to better safety performance. Interpretation of coefficients; Intercept (B = 0.737): The expected safety performance score when all predictors are zero (theoretically not meaningful but required in regression models). Management Commitment (β = 0.499): For every one-unit increase in management commitment, safety performance increases by approximately 0.505 units. This is the strongest influence among the three. Safety Knowledge (β = 0.200): A one-unit increase in safety knowledge leads to a 0.192 unit increase in safety performance. Safety Motivation (β = 0.156): A one unit increase in safety motivation is associated with a 0.154 unit increase in safety performance.

Implication from above result can be intrepret; as for leadership, since management commitment has the greatest influence, leadership should be visibly involved in safety initiatives, provide resources, and enforce safety policies consistently. For training, the significance of safety knowledge suggests that continuous safety training and operational know-how are critical. For organization, encouraging intrinsic safety motivation through communication, reward systems, and peer support can further strengthen safety behavior. Policy development, results support investing in comprehensive safety programs that include leadership engagement, regular training, and motivational strategies.

Mat Isa et al. (2019) conducted an inter-correlation analysis to assess the strength and direction of the linear relationship between two variables. The resulting value reflects both the direction (positive or negative) and the strength of the relationship, with a range from -1.0 to +1.0. The studies referenced Cohen's (1998) guidelines, which are detailed in Table 4.11.

Table 4.11:
Pearson Coefficients (Cohen, 1998)

Pearson correlation coefficients (r)	**Value**	**Strenght of correlation**
Between .10 and .29	Small	Poor relationship
Between .30 and .49	Medium	Medium relationship
Between .50 and 1.0	Large	Strong relationship

Refer to results of the Pearson Correlation, table 4.9, correlation analysis is used in this study to examined relationship between independent variables (management commitment, safety knowledge and safety motivation) with safety performance at 3 KAD.

Table 4.12:
Pearson correlation value

		Safety Performance	Management Commitment	Safety Knowledge	Safety Motivation
Safety performance	Pearson Correlation	1	.652**	.484**	.412**
	N	169	169	169	169

Hypothesis 1: There is a significant relationship between commitment management with safety performance.

Table 4.13:
Relationship between management commitment and safety performance

		Safety Performance	Management Commitment	Safety Knowledge	Safety Motivation
Management commitment	Pearson Correlation	.652**	1	.468**	.383**
	Sig. (2-tailed)	.000		.000	.000
	N	169	169	169	169

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.10 explains that management commitment is correlated and has a significant relationship with safety performance, $\beta = 0.499$, t (166) = 7.610, $p < 0.01$. The hypothesis above showed that management commitment and safety performance have

a posisitive relationship between two tested variables. Referring to Table 4.13, there is significant correlation between management commitment and safety performance. Therefore, H1 are accepted and it is validated that the relationship between management commitment and safety performance among crew armoured vehicle is significant.

Table 4.14:
Result Analysis Hypothesis 1

	Hypothesis	**Result**
H1	There is a significant relationship between management commitment with crew safety performance.	Accepted

Hypothesis 2: There is a significant relationship between safety knowledge with safety performance.

Table 4.15:
Relationship between safety knowledge and safety performance

		Safety Performance	Management Commitment	Safety Knowledge	Safety Motivation
Safety knowledge	Pearson Correlation	.484**	.468**	1	.326**
	Sig. (2-tailed)	.000	.000		.000
	N	169	169	169	169

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.10 explains that safety knowledge is correlated and has a significant relationship with safety performance, $\beta = 0.200$, $t\ (166) = 3.118$, $p < 0.01$. Referring to Table 4.15, there is significant correlation between safety knowledge and safety performance. Therefore, H2 are accepted and it is validated that the relationship between safety knowledge and safety performance among crew armoured vehicle is significant.

Table 4.16:
Result Analysis Hypothesis 2

	Hypothesis	Result
H2	There is a significant relationship between safety knowledge with crew safety performance.	Accepted

Hypothesis 2: There is a significant relationship between safety motivation with safety performance.

Table 4.17:
Relationship between safety motivation and safety performance

		Safety Performance	Management Commitment	Safety Knowledge	Safety Motivation
Safety motivation	Pearson Correlation	.412**	.383**	.326**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	169	169	169	169

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.10 explains that safety motivation is correlated and has a significant relationship with safety performance, $\beta = 0.156$, $t\ (166) = 2.543$, $p < 0.05$. Table 4.17, there is significant correlation between safety motivation and safety performance. Therefore, H3 are accepted and it is validated that the relationship between safety motivation and safety performance among crew armoured vehicle is significant.

Table 4.18:
Result Analysis Hypothesis 3

	Hypothesis	Result
H3	There is a significant relationship between safety motivation with crew safety performance.	Accepted

4.9 Summary

Throuhout data collection there was no missing data were detected, as all returned questionnaires were fully completed. This thorough process ensured the dataset was clean, complete and ready for further analysis using SPSS, enhancing the reliability of the research findings. This chapter presents the findings from the analysis of the research data, aimed at achieving the study's objectives. The outcomes of the data analysis are clearly reported in each section. Three hypotheses were tested, and all three are accepted in this study.

CHAPTER FIVE

DISCUSSION

This chapter presents a comprehensive discussion of the findings on the safety performance of armoured vehicle crews in 3 KAD, integrating results from the previous chapter and aligning them with the research objectives. The following research objectives were established and have been successfully addressed through comprehensive data analysis. First is to examine the relationship between management commitment and safety performance among amoured vahilce crews; the findings demonstrated a significant relationship, indicate strong and visible management commitment positively influences the safety behavior of armoured vehicle crew. Second, to assess the influence safety knowledge on safety performance; the analysis revealed that safety knowledge significantly impacts safety performance, well informed armoured vehicle crew were better equipped to recognize hazards, adhere to procedures, and make informed decisions, thereby minimizing risk during operations. Lastly, to evaluate the influence safety motivation on safety performance; the results confirmed that safety motivation is a critical predictor of safety performance, armoured vehicle crews with higher safety motivation exhibited a stronger commitment to safe practices, contributing to a proactive safety culture within the regiment.

The discussion focuses on interpreting the outcomes, evaluating their implications and assessing the overall effectiveness of current safety practices. Key areas are associated with the management commitment, safety knowledge and safety motivation towards influencing crews safety performance. The conclusion for the entire study will be stated at the end of this chapter. This study has successfully collected data from trained and qualified army in the operation of armoured vehicles, the crew for this

vehicle can be consider as *subject matter expert* (SME) such as others civilian are not being expose in handling this type of vehicle. Armoured vehicle crew have undergone training and relevant courses before being allowed to operate high-value national assets.

5.1 Finding Summary

This study was conducted to investigate the relationship between management commitment, safety knowledge and safety motivation with armoured vehicle crew safety performance in 3 KAD. Using a quantitative approach, a total of 169 respondents participated through a structured questionnaire. Data were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis via SPSS Version 29. The results revealed that all three independent variables management commitment, safety knowledge and safety motivation had a significant relationship with armoured vehicle crew safety performance. Management commitment was shown to play a crucial role in influencing the safety behaviors of the personnel by providing leadership support and reinforcing safety procedures. Safety knowledge significantly contributed to the ability of the armoured vehicle crew to identify hazards and take preventive measures during operations. Meanwhile, safety motivation emerged as an essential driver in promoting proactive safety practices and consistent adherence to safety protocols among the armoured vehilce crew. These findings provide empirical support for the proposed hypotheses and validate the application of Safety Climate Theory in a military context. The study contributes to both academic understanding and practical improvements in army safety management, especially in enhancing armoured vehicle crew safety performance in high risk operational settings.

5.2 Discussion

The findings indicate that management commitment is fundamental to crew safety performance, requiring leaders to lead by example and integrate safety into daily operations. Consistent enforcement, prompt action on safety issues and motivation are essential. Safety knowledge, gained through structured training and peer learning, enables crews to operate safely and reduce accidents. Maintaining high safety motivation involves fostering a positive safety culture, recognizing safe behavior and encouraging open communication. This approach aligns with army expectations of exceeding performance standards while prioritizing crew well-being and safety.

5.2.1 Management Commitment to Safety Performance

The findings indicated that management commitment is a foundational element of safety performance among armoured vehicle crews. To sustain and enhance safety outcomes, leadership must continuously demonstrate a strong commitment to safety by integrating it into education, enforcing safety rules consistently, addressing safety issues promptly and have a method to motivate his crews. Management commitment is also a form of leadership from above, leadership by example is a fundamental concept in management that requires leaders to not only hold positions, but to be the best example to armoured vehilce crew. This means that leaders must demonstrate the values and principles taught through their own actions, not just through words or instructions. In the context of army operations, where safety is paramount, the commander leadership's dedication to promoting and maintaining safety standards significantly influences the behavior and attitudes of the armoured vehicle crews.

The findings from the previous chapter indicate a significant relationship between management commitment and safety performance, as evidenced by the correlation coefficient. This correlation highlights that the more committed the management is, the better the safety performance among the armoured vehicle crew. The results revealed that management commitment to safety performance was perceived as high. Among the nine items measuring management commitment, the highest score was for the statement, "Safety issues are given high priority in training". This indicates that when training programs prioritize safety, it positively affects the armoured vehicle crew's safety behaviors. Such as core dimension of Safety Climate Theory (Zohar, 1980), identified several organizational factors influencing safety climate, including perceived management attitudes and commitment toward safety, and open communication channels between workers and management. The theory posits that a strong safety climate arises from consistent, meaningful management commitment to safety because the observed correlation show that commitment indeed influence safety performance. This commitment must be reflected in visible practices, authority structures, communication, and resource allocation.

The analysis indicate that for the army management commitment is a critical driver of safety performance especially when leaders prioritize safety, it sets the tone for the entire organization. Moreover, the army is as an organization that works according to instructions from the top, proper management at every level is very important (The Army, M 1 TD, 2010). As stated by Cooper (2006), each management level exerted independent and cumulative effect on employee safety behavior. Higher management commitment primarily shapes army personnel behaviors and secondarily influences lower management behaviors, which in turn impact armoured vehicle crew

behavior. This commitment can manifest through adequate resource allocation, clear communication of safety policies, regular training and continuous improvement processes. It signals to the armoured vehicle crew that their well-being is a priority, fostering a safety culture where risks are actively managed.

Furthermore, the item "Safety rules and procedures are strictly followed by the regiment" highlights the regiment's commitment to strictly enforcing safety regulations. This is crucial because consistent enforcement of safety standards fosters a culture of compliance and responsibility among the armoured vehicle crew. The findings also indicated that the regiment considers safety equally important as task performance, emphasizing the balance between operational efficiency and safety. The leadership's proactive response to safety concerns also contributes significantly to safety performance. For instance, the prompt action taken when near miss accidents are reported illustrates an organizational culture that values safety feedback and responds accordingly. This proactive stance demonstrates the management's dedication to continuous safety improvements, thereby encouraging the armoured vehilce crew to maintain safe practices. Thus, this discussion is consistent with Bayram (2018), Vinodkumar & Bhasi (2010) that emphasized leadership's critical role in shaping safety behavior and management commitment predicts safety compliance.

However, the study also identified areas for improvement. Notably, some items reflected moderate perceptions, such as the belief that regiment management might compromise safety for increased tasking. This finding underscores the need for management to reaffirm their commitment to safety, especially when operational demands increase. Clear communication and consistent safety prioritization are vital in mitigating perceptions of safety compromise.

5.2.2 Safety Knowledge to Safety Performance

In military settings, armoured vehicle operations involve complex and hazardous tasks, possessing adequate safety knowledge directly impacts armoured vehicle crew's ability to operate safely. Consequently, armoured vehicle crew with a higher level of safety knowledge and related skills are more likely to reduce the incidence of workplace accidents. Strengthening knowledge transfer between experienced and new armoured vehicle crew can also help maintain high safety standards. Sinaga and Sinaga (2022) had stated apart monitoring leaders' performance and possessing safety knowledge, armoured vehicle crew must also be skilled in operating the necessary equipment that contribute to their safety as for the organization. The study findings revealed that safety knowledge among armoured vehicle crews is relatively high, indicating that the crew members are generally well informed about safe operating procedures. Even in Safety Climate (Zohar, 1980), emphasized on structured safety training that shapes safety knowledge acquisition, when the climate is supportive, employees are more likely to engage with safety training, retain the information and apply it on the job. Safety knowledge is another critical factor influencing safety performance, as highlighted by the significant positive correlation.

Working in an environment that is constantly exposed to risk is important to put safety knowledge as foundational for effective risk management. This study confirms that it is important to equips armoured vehicle crew with the understanding needed to identify hazards, assess risks and take appropriate action in high pressure situations. For armoured vehicle crews, this knowledge is particularly vital, given the complex and dynamic nature of their operating environment. This is also in line with the finding by Putra et al (2022), that safety knowledge can directly prevent work accident in

company, which also can be apply in the army. The more information armoured vehicle crew receives about OSH values, the better they understand the sources of danger that could lead to workplace accidents.

One of the highest rated items was the statement, "I know how to perform my job in a safe manner", this indicates that armoured vehicle crews are confident in their ability to execute tasks safely, a critical factor in minimizing accidents and incidents. The second highest-rated item, "I know how to operate armoured vehicles and follow standard work procedures", underscores the importance of both theoretical knowledge and practical skills. Proper training equips armoured vehicle crew with the essential knowledge to effectively manage the risks associated with vehicle operations. Moreover, the ability to identify potential hazards and take precautionary measures is essential for safety performance. The finding that armoured vehicle crew know the hazards associated with their jobs reflects the effectiveness of hazard identification training. This knowledge empowers armoured vehicle crew to act proactively, reducing the likelihood of accidents. Additionally, knowing how to reduce the risk of accidents while operating armoured vehicles further enhances safety performance, as it translates theoretical knowledge into practical application. Nevertheless, one area of concern is the moderate rating for the item "I don’t know what to do if a potential hazard is noticed in the workplace", this highlights a gap in the training or communication strategies regarding hazard reporting and response. Addressing this gap by providing clear guidelines on hazard management can improve the crew’s readiness to respond effectively.

5.2.3 Safety Motivation to Safety Performance

Taking care of the individual's internal factors is also important where maintaining high safety motivation requires fostering a positive safety culture, where commitment to safety is consistently recognized and rewarded. In the army, every role requires individuals to exceed demands, expectations, and requirements (Ibrahim et al., 2021). Safety motivation reflects the armoured vehicle crew's willingness to prioritize safety, and it significantly influences their safety performance. The study revealed a positive correlation between safety motivation and safety performance, indicating that motivated individuals are more likely to adhere to safety protocols. The overall mean score of safety motivation was high, suggesting that armoured vehicle crews generally recognize the importance of safety in their daily operations. Luo (2020) mention safety climate perception affects behavioural expectations, which in turn influence safety motivation. This motivation leads to safety behaviours, such as compliance and participation, ultimately impacting safety performance outcomes, like fewer accidents or injuries.

This research indicate that safety motivation is the internal drive that compels armoured vehicle crew to prioritize safe practices, which encourages them adhere more towards safety performance. Even a study by Panuwatwanich (2016) stated, a recent study using a meta-analytic path model found that motivation for safety had the strongest influence on safety performance behavior, closely followed by psychological safety climate and safety group climate. Safety motivation can be cultivated through positive reinforcement, recognition and creating a sense of personal responsibility for safety. When armoured vehicle crew feel personally invested in their own safety and that of their members, they are more likely to adhere to protocols, report hazards and

take proactive measures to prevent accidents. This was alligned with Luo (2020), safety climate affects behavior and motivation, and Panuwatwanich (2016), safety motivation has a strong influence on safety behavior.

Among the motivation items, the highest score was for the statement, "I believe that safety while performing the job is a very important issue", this finding indicates a strong intrinsic motivation among armoured vehicle crew to maintain safety as a fundamental part of their responsibilities. Another highly rated statement was, "I feel that it is important to promote safety programs", highlighting the armoured vehicle crew's willingness to support safety initiatives actively. Intrinsic motivation is essential because it sustains safe behavior even when external supervision is minimal. Encouraging armoured vehicle crew to internalize the value of safety can lead to long term improvements in safety performance. The data also showed that most armoured vehicle crew believe in the necessity of reducing accidents through continuous effort, which aligns with proactive safety behavior. However, the perception that safety can sometimes be compromised for increased tasking indicates that pressure to perform operational tasks might sometimes override safety considerations as is usual when the army often prioritizes mission execution over everything else. To address this, fostering a safety culture where safety is never seen as secondary to mission objectives is crucial. Management should reinforce that maintaining safety does not hinder task completion but rather ensures sustained operational readiness.

5.3 Recommendation

The findings from this study specifically add to the literature, references, policies and procedures that can be improved or reviewed on all variables studied, including

aspects of commitment management, safety knowledge and safety motivation in supporting the improvement of safety performance towards armoured vehicle crews in 3 KAD. Thus, all the findings identified able to expand and further strengthen the theoretical dimension regarding safety performance, which basically this study has proven the strength between commitment management, safety knowledge and safety motivation in improving or strengthening safety performance from time to time. In increasing efforts to improve effective safety performance, 3 KAD need to reorganize a more comprehensive action plan by continuously implementing audits, update SOP, review policies and effectiveness studies on triggering factors that can have an impact in increasing the level of awareness about safety in the regiment. With this study conducted, it will provide an opportunity and inspiration for organizations to continue to cultivate and prioritize aspects of occupational safety and health in the daily routine of armoured vehicle crew and may be used as a reference for other related organizations.

Regiment management or commander in an organization should be more open when being exposed to the findings of this study and subsequently occurance the accidents in the camp can be reduced. In addition, regiment must be able to promote aspects of occupational safety and health in the camp by collaborating with other related agencies or universities that have conducted such studies, it is to identify that studies conducted can be realized through the application of the findings to see whether the study is workable or not. Existing SOP in organizations may need to be studied or updated in line with current environmental and technological trends. Information sharing is the core of collaboration between agencies to achieve this objective.

Therefore, based on the facts above, here are some suggestions for researchers in the future in expanding such studies, especially involving sectors not covered by OSH Act 94 such as; studies on safety performance that are more focused on variants of the vehicle or work systems that are categorized as having a high risk level. List several contributing factors that can be used as independent variables or contributors to improving safety performance levels such as compliance with equipment or asset procurement specifications that need to take into account factors such as ergonomics for users. Diversifying research instruments by obtaining primary data through qualitative methods with interview techniques to respondents who are directly involved for the purpose of obtaining authentic and more accurate feedback.

5.4 Limitation of Research

The findings presented in this research are based on a specific set of operational conditions, primarily drawn from peace time operations, harsh condition might result different outcomes. While this provides valuable insights, it may not fully represent the complexities and challenges of all potential military environments. Only one variant of vehicle involve in this study, future research should aim to incorporate a broader range of data, including different vehicle types, combat scenarios and environmental factors, to validate and expand these findings. This approach will provide a more comprehensive understanding of how respondents interact under calm conditions compared to harsh, combat-intensive situations.

Additionally, the researcher observed that respondents sometimes experienced confusion when defining safety and priority while assessing safety in task implementation. This challenge is particularly evident when soldiers prioritize mission

objectives over other considerations. In army, missions often involve collaborative efforts, requiring coordinated actions to ensure overall success. Clearer guidelines and briefing protocols are needed to help respondents distinguish between mission directives issued by superior officers and routine operational tasks involving vehicle management. This clarity is essential for ensuring that safety remains a consistent priority, even in high stakes environments.

Furthermore, a significant limitation is the possession of vehicles within the 3 KAD, which stands at only 25% of the unit's authorized capacity. This shortfall restricts both the operational flexibility and training opportunities available to the armoured vehicle crews. It forces the unit to adopt vehicle rotation strategies, which can limit the time each armoured vehicle crew has to gain critical experience in vehicle management. This limitation directly impacts their ability to develop the necessary skills to operate safely and effectively in diverse mission scenarios.

5.5 Coclusion

The study demonstrates that management commitment, safety knowledge and safety motivation significantly influence the safety performance of armoured vehicle crews. Management commitment remains the most influential factor, followed by safety knowledge and safety motivation. To enhance safety performance, a holistic approach that combines leadership commitment, continuous training and intrinsic motivation is essential. By prioritizing these factors, the regiment can create a safer working environment for armoured vehicle crews. The army formation often views leadership as a key driver for enhancing safety performance in its operations. According to Peng et al. (2022), managers with higher psychological capital inspire hope within

their organisations, promote joy among employees, cultivate a positive working environment, and encourage constructive expression of feelings.

As the way working in army, management commitment emerged as the most influential factor, providing the foundation for effective safety practices by fostering a culture of accountability and proactive risk management. It sets the tone for prioritizing safety, directly impacting armoured vehicle crew behavior and reinforcing the importance of maintaining high safety standards or performance. Safety knowledge further strengthens this relationship, as well trained armoured vehicle crew are better equipped to identify hazards, understand procedures and make informed decisions in high risk situations. This knowledge is essential for translating management's safety expectations into practical. Similarly, safety motivation plays a vital role by encouraging armoured vehicle crews to consistently prioritize safety, even in challenging operational environments. When they are motivated to adhere to safety protocols, armoured vehicle crew exhibit more disciplined and mindful behaviour. This, in turn, reduces the likelihood of accidents and enhances overall performance. Together, these findings underscore the importance of a holistic approach to safety management, where strong leadership from management commitment, continuous training to gain knoelwdge and a motivated workforce collectively contribute to safer operations. This integrated perspective provides a valuable foundation for developing targeted interventions and training programs aimed at reducing risks and enhancing operational effectiveness.

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Appendix A

Pilot Test Result

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.832	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
B1	31.73	10.409	.814	.781
B2	31.83	11.109	.707	.796
B3	32.13	11.913	.320	.846
Rec_B4	32.70	12.148	.268	.854
B5	31.77	13.220	.354	.832
B6	31.97	12.585	.367	.831
B7	31.73	10.202	.795	.781
B8	31.83	11.730	.723	.801
B9	31.77	10.806	.731	.792

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.828	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
C1	32.07	14.616	.537	.811
C2	32.13	14.947	.526	.814
C3	32.40	14.179	.573	.807
Rec_C4	33.23	10.944	.766	.779
C5	32.53	15.016	.401	.824
Rec_C6	32.90	12.852	.630	.798
C7	32.70	15.045	.418	.822
C8	32.50	14.534	.438	.821
C9	32.60	13.352	.553	.808

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.719	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1	19.43	3.909	.673	.611
D2	19.47	5.016	.636	.677
D3	19.53	4.878	.508	.680
D4	19.57	5.082	.336	.712
D5	19.27	4.340	.606	.643
Rec_D6	20.57	3.082	.423	.782

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.868	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
E1	21.93	3.926	.824	.817
E2	21.87	4.533	.478	.877
E3	21.83	4.006	.770	.827
E4	22.30	4.493	.402	.896
E5	21.93	3.926	.824	.817
E6	21.97	4.033	.772	.827

Appendix B

Main Test Result

Frequency Table

pangkat

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tpr/LKpl	40	23.5	23.5	23.5
	Kpl	92	54.1	54.1	77.6
	Sjn/SSjn	21	12.4	12.4	90.0
	Lt M/Lt/Kapt	17	10.0	10.0	100.0
	Total	169	100.0	100.0	

umur

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 25 tahun	16	9.4	9.4	9.4
	25 - 35 tahun	136	80.0	80.0	89.4
	36 - 45 tahun	18	10.6	10.6	100.0
	Total	169	100.0	100.0	

pendidikan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	≤ SPM	148	87.1	87.1	87.1
	STPM/Diploma	5	2.9	2.9	90.0
	Ijazah Sarjana Muda	17	10.0	10.0	100.0
	Total	169	100.0	100.0	

pengalaman

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 1 tahun	8	4.7	4.7	4.7
	1 - 7 tahun	75	44.1	44.1	48.8
	8 - 15 tahun	68	40.0	40.0	88.8
	> 15 tahun	19	11.2	11.2	100.0
	Total	169	100.0	100.0	

Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.773	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
B1	29.71	6.798	.531	.740
B2	29.72	6.665	.602	.729
B3	29.92	6.360	.559	.733
Rev_B4	30.56	6.674	.261	.810
B5	29.88	7.146	.441	.754
B6	29.77	6.616	.587	.730
B7	29.73	6.861	.509	.743
B8	29.74	6.962	.486	.747

Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.721	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
C1	32.31	8.829	.451	.689
C2	32.35	9.033	.398	.697
C3	32.49	8.725	.483	.684
Rev_C4	33.05	8.755	.261	.726
C5	32.44	8.508	.494	.680
Rev_C6	33.27	8.234	.448	.686
Rev_C7	33.32	8.336	.324	.716
C8	32.50	8.666	.444	.688
C9	32.54	8.557	.373	.700

Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.733	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
D1	20.82	3.661	.617	.656
D2	20.83	3.622	.662	.645
D3	20.94	3.535	.723	.629
D4	20.94	3.659	.664	.646
D5	20.93	3.735	.595	.664
Rev_D6	21.57	4.637	-.029	.885

Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.727	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
E2	16.81	2.237	.559	.653
E3	16.87	2.173	.575	.645
Rev_E4	17.78	2.612	.175	.811
E5	16.92	2.147	.633	.625
E6	16.85	2.201	.590	.642

Descriptives

Descriptive Statistics

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Safety performance	169	-.203	.186	.159	.370
Management commitment	169	.236	.186	-.114	.370
Safety knowledge	169	.493	.186	-.236	.370
Safety motivation	169	.305	.186	-1.238	.370
Valid N (listwise)	169				

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.724
Bartlett's Test of Sphericity	Approx. Chi-Square	480.835
	df	28
	Sig.	.000

Communalities

	Initial	Extraction
B1	1.000	.490
B2	1.000	.557
B3	1.000	.478
Rev_B4	1.000	.125
B5	1.000	.330
B6	1.000	.525
B7	1.000	.471
B8	1.000	.410

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.386	42.324	42.324	3.386	42.324	42.324
2	1.304	16.302	58.626			
3	.994	12.430	71.056			
4	.856	10.705	81.761			
5	.522	6.528	88.289			
6	.377	4.707	92.996			
7	.347	4.339	97.335			
8	.213	2.665	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
B1	.700
B2	.746
B3	.691
Rev_B4	.353
B5	.574
B6	.725
B7	.687
B8	.641

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.731
Bartlett's Test of Sphericity	Approx. Chi-Square	359.053
	df	36
	Sig.	.000

Communalities

	Initial	Extraction
C1	1.000	.452
C2	1.000	.387
C3	1.000	.468
Rev_C4	1.000	.111
C5	1.000	.454
Rev_C6	1.000	.262
Rev_C7	1.000	.158
C8	1.000	.357
C9	1.000	.350

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.999	33.323	33.323	2.999	33.323	33.323
2	1.464	16.262	49.584			
3	1.304	14.484	64.068			
4	.780	8.663	72.731			
5	.621	6.904	79.635			
6	.574	6.383	86.018			
7	.490	5.439	91.457			
8	.428	4.752	96.209			
9	.341	3.791	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
C1	.673
C2	.622
C3	.684
Rev_C4	.333
C5	.674
Rev_C6	.512
Rev_C7	.398
C8	.597
C9	.591

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.792
Bartlett's Test of Sphericity	Approx. Chi-Square	504.985
	df	15
	Sig.	.000

Communalities

	Initial	Extraction
D1	1.000	.689
D2	1.000	.725
D3	1.000	.803
D4	1.000	.654
D5	1.000	.566
Rev_D6	1.000	.002

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.439	57.313	57.313	3.439	57.313	57.313
2	1.032	17.198	74.511			
3	.671	11.185	85.696			
4	.409	6.821	92.517			
5	.260	4.335	96.852			
6	.189	3.148	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
D1	.830
D2	.851
D3	.896
D4	.809
D5	.752
Rev_D6	-.043

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.741
Bartlett's Test of Sphericity	Approx. Chi-Square	519.903
	df	15
	Sig.	.000

Communalities

	Initial	Extraction
E1	1.000	.782
E2	1.000	.675
E3	1.000	.720
Rev_E4	1.000	.053
E5	1.000	.590
E6	1.000	.487

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.309	55.142	55.142	3.309	55.142	55.142
2	1.070	17.833	72.975			
3	.816	13.592	86.567			
4	.423	7.049	93.616			
5	.220	3.672	97.289			
6	.163	2.711	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
E1	.884
E2	.822
E3	.849
Rev_E4	.231
E5	.768
E6	.698

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Rotated Component Matrix[a]

a. Only one component was extracted. The solution cannot be rotated.

Frequency Table

B1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	3	1.8	1.8	1.8
	S	90	52.9	52.9	54.7
	SS	77	45.3	45.3	100.0
	Total	169	100.0	100.0	

B2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	2	1.2	1.2	1.2
	S	93	54.7	54.7	55.9
	SS	75	44.1	44.1	100.0
	Total	169	100.0	100.0	

B3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TS	2	1.2	1.2	1.2
	TP	13	7.6	7.6	8.8
	S	99	58.2	58.2	67.1
	SS	56	32.9	32.9	100.0
	Total	169	100.0	100.0	

B4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STS	25	14.7	14.7	14.7
	TS	66	38.8	38.8	53.5
	TP	63	37.1	37.1	90.6
	S	16	9.4	9.4	100.0
	Total	169	100.0	100.0	

B5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	4	2.4	2.4	2.4
	S	117	68.8	68.8	71.2
	SS	49	28.8	28.8	100.0
	Total	169	100.0	100.0	

B6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	5	2.9	2.9	2.9
	S	96	56.5	56.5	59.4
	SS	69	40.6	40.6	100.0
	Total	169	100.0	100.0	

B7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TS	1	.6	.6	.6
	S	96	56.5	56.5	57.1
	SS	73	42.9	42.9	100.0
	Total	169	100.0	100.0	

B8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	2	1.2	1.2	1.2
	S	97	57.1	57.1	58.2
	SS	71	41.8	41.8	100.0
	Total	169	100.0	100.0	

C1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	3	1.8	1.8	1.8
	S	83	48.8	48.8	50.6
	SS	84	49.4	49.4	100.0
	Total	169	100.0	100.0	

C2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	2	1.2	1.2	1.2
	S	92	54.1	54.1	55.3
	SS	76	44.7	44.7	100.0
	Total	169	100.0	100.0	

C3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	7	4.1	4.1	4.1
	S	107	62.9	62.9	67.1
	SS	56	32.9	32.9	100.0
	Total	169	100.0	100.0	

C4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STS	27	15.9	15.9	15.9
	TS	78	45.9	45.9	61.8
	TP	58	34.1	34.1	95.9
	S	7	4.1	4.1	100.0
	Total	169	100.0	100.0	

C5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	10	5.9	5.9	5.9
	S	91	53.5	53.5	59.4
	SS	69	40.6	40.6	100.0
	Total	169	100.0	100.0	

C6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STS	10	5.9	5.9	5.9
	TS	78	45.9	45.9	51.8
	TP	71	41.8	41.8	93.5
	S	11	6.5	6.5	100.0
	Total	169	100.0	100.0	

C7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STS	14	8.2	8.2	8.2
	TS	72	42.4	42.4	50.6
	TP	64	37.6	37.6	88.2
	S	19	11.2	11.2	99.4
	SS	1	.6	.6	100.0
	Total	169	100.0	100.0	

C8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TS	1	.6	.6	.6
	TP	9	5.3	5.3	5.9
	S	101	59.4	59.4	65.3
	SS	59	34.7	34.7	100.0
	Total	169	100.0	100.0	

C9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TS	3	1.8	1.8	1.8
	TP	16	9.4	9.4	11.2
	S	88	51.8	51.8	62.9
	SS	63	37.1	37.1	100.0
	Total	169	100.0	100.0	

D1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	4	2.4	2.4	2.4
	S	97	57.1	57.1	59.4
	SS	69	40.6	40.6	100.0
	Total	169	100.0	100.0	

D2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	3	1.8	1.8	1.8
	S	100	58.8	58.8	60.6
	SS	67	39.4	39.4	100.0
	Total	169	100.0	100.0	

D3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	6	3.5	3.5	3.5
	S	113	66.5	66.5	70.0
	SS	51	30.0	30.0	100.0
	Total	169	100.0	100.0	

D4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	5	2.9	2.9	2.9
	S	114	67.1	67.1	70.0
	SS	51	30.0	30.0	100.0
	Total	169	100.0	100.0	

D5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	6	3.5	3.5	3.5
	S	111	65.3	65.3	68.8
	SS	53	31.2	31.2	100.0
	Total	169	100.0	100.0	

D6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STS	23	13.5	13.5	13.5
	TS	75	44.1	44.1	57.6
	TP	60	35.3	35.3	92.9
	S	11	6.5	6.5	99.4
	SS	1	.6	.6	100.0
	Total	169	100.0	100.0	

E1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	S	96	56.5	56.5	56.5
	SS	74	43.5	43.5	100.0
	Total	169	100.0	100.0	

E2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	S	86	50.6	50.6	50.6
	SS	84	49.4	49.4	100.0
	Total	169	100.0	100.0	

E3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	2	1.2	1.2	1.2
	S	92	54.1	54.1	55.3
	SS	76	44.7	44.7	100.0
	Total	169	100.0	100.0	

E4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	STS	4	2.4	2.4	2.4
	TS	88	51.8	51.8	54.1
	TP	72	42.4	42.4	96.5
	S	6	3.5	3.5	100.0
	Total	169	100.0	100.0	

E5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TP	1	.6	.6	.6
	S	102	60.0	60.0	60.6
	SS	67	39.4	39.4	100.0
	Total	169	100.0	100.0	

E6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	S	92	54.1	54.1	54.1
	SS	78	45.9	45.9	100.0
	Total	169	100.0	100.0	

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
B1	169	3	5	4.44	.532
B2	169	3	5	4.43	.520
B3	169	2	5	4.23	.635
B4	169	1	4	2.41	.854
Rev_B4	169	2	5	3.59	.854
B5	169	3	5	4.26	.493
B6	169	3	5	4.38	.543
B7	169	2	5	4.42	.529
B8	169	3	5	4.41	.516
Safety performance	169	2.88	5.00	4.2684	.36555
C1	169	3	5	4.48	.535
C2	169	3	5	4.44	.521
C3	169	3	5	4.29	.538
C4	169	1	4	2.26	.773
Rev_C4	169	2	5	3.74	.773
C5	169	3	5	4.35	.588
C6	169	1	4	2.49	.707
Rev_C6	169	2	5	3.51	.707
C7	169	1	5	2.54	.822
Rev_C7	169	1	5	3.46	.822
C8	169	2	5	4.28	.588
C9	169	2	5	4.24	.693

Management commitment	169	3.33	5.00	4.0869	.36090
D1	169	3	5	4.38	.534
D2	169	3	5	4.38	.521
D3	169	3	5	4.26	.517
D4	169	3	5	4.27	.508
D5	169	3	5	4.28	.522
D6	169	1	5	2.36	.819
Rev_D6	169	1	5	3.64	.819
Safety knowledge	169	3.33	5.00	4.2010	.38027
E1	169	4	5	4.44	.497
E2	169	4	5	4.49	.501
E3	169	3	5	4.44	.521
E4	169	1	4	2.47	.607
Rev_E4	169	2	5	3.53	.607
E5	169	3	5	4.39	.501
E6	169	4	5	4.46	.500
Safety motivation	169	3.67	5.00	4.2902	.36949
Valid N (listwise)	169				

Correlations

Correlations

		Safety performance	Management commitment	Safety knowledge	Safety motivation
Safety performance	Pearson Correlation	1	.652**	.484**	.412**
	Sig. (2-tailed)		.000	.000	.000
	N	169	169	169	169
Management commitment	Pearson Correlation	.652**	1	.468**	.383**
	Sig. (2-tailed)	.000		.000	.000
	N	169	169	169	169
Safety knowledge	Pearson Correlation	.484**	.468**	1	.326**
	Sig. (2-tailed)	.000	.000		.000
	N	169	169	169	169
Safety motivation	Pearson Correlation	.412**	.383**	.326**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	169	169	169	169

**. Correlation is significant at the 0.01 level (2-tailed).

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Safety motivation, Safety knowledge, Management commitment[b]	.	Enter

a. Dependent Variable: Safety performance
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.697[a]	.486	.477	.26446	1.860

a. Predictors: (Constant), Safety motivation, Safety knowledge, Management commitment
b. Dependent Variable: Safety performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.973	3	3.658	52.296	.000[b]
	Residual	11.610	166	.070		
	Total	22.583	169			

a. Dependent Variable: Safety performance
b. Predictors: (Constant), Safety motivation, Safety knowledge, Management commitment

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.737	.299		2.453	.015		
	Management commitment	.505	.066	.499	7.610	.000	.721	1.387
	Safety knowledge	.192	.062	.200	3.118	.002	.755	1.324
	Safety motivation	.154	.061	.156	2.543	.012	.825	1.211

a. Dependent Variable: Safety performance

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	Management commitment	Safety knowledge	Safety motivation
1	1	3.987	1.000	.00	.00	.00	.00
	2	.005	27.389	.02	.06	.46	.58
	3	.004	31.152	.01	.91	.43	.04
	4	.003	34.413	.96	.03	.11	.38

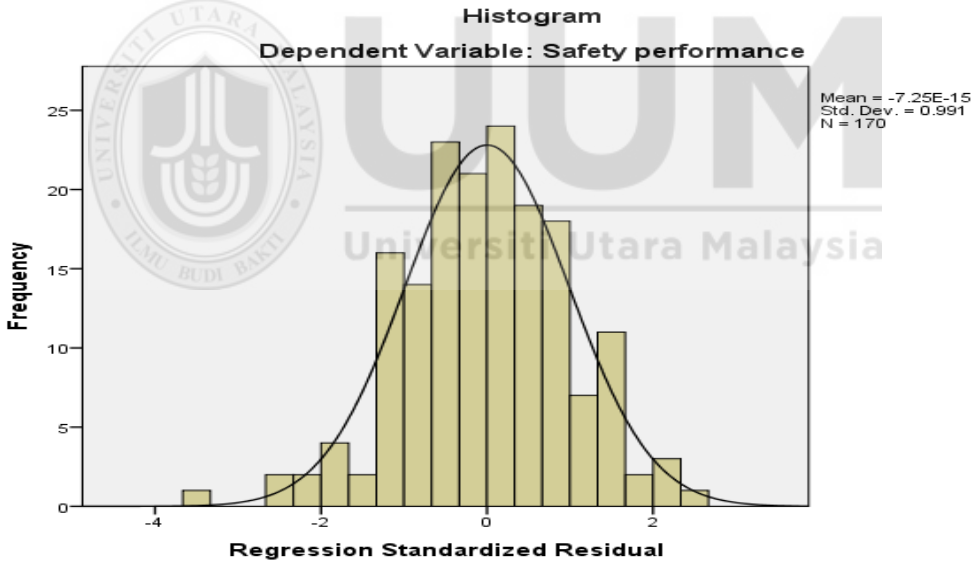
a. Dependent Variable: Safety performance

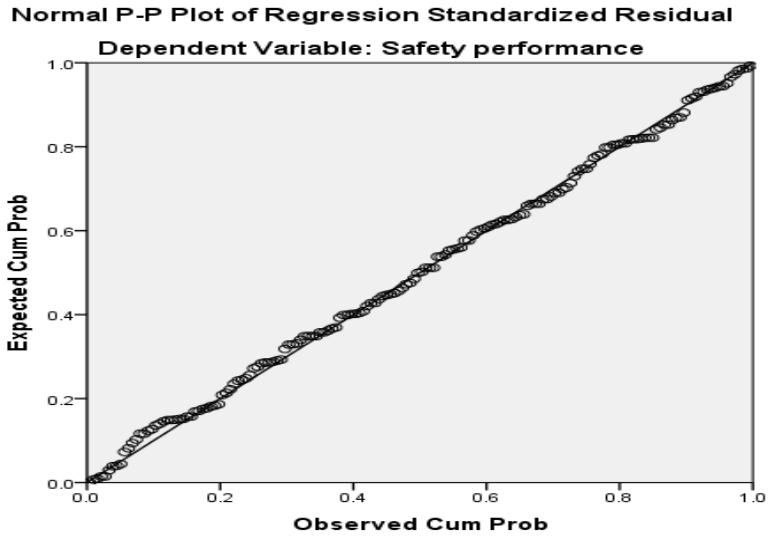
Residuals Statistics[a]

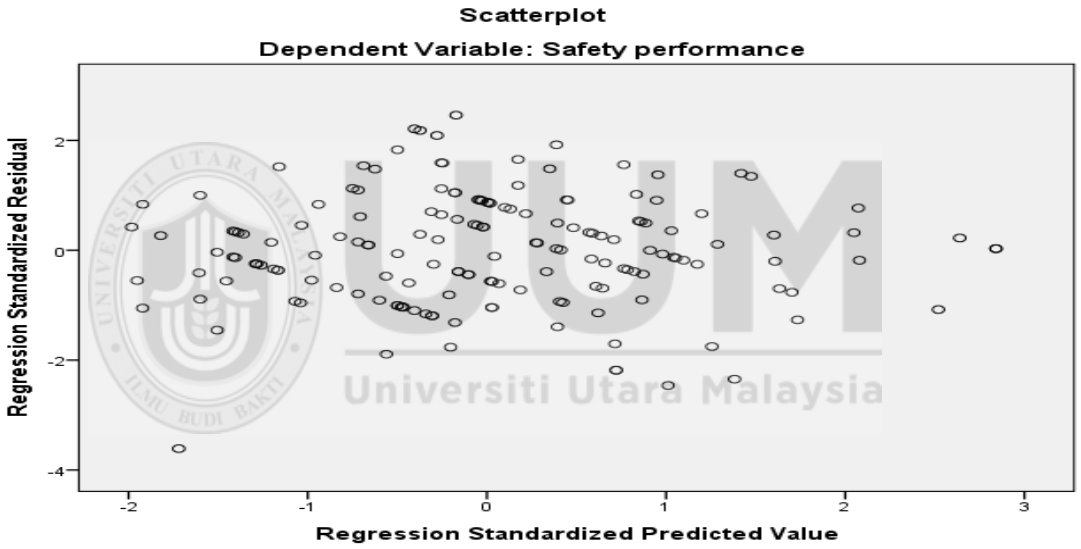
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.7631	4.9923	4.2684	.25481	169
Residual	-.95514	.65046	.00000	.26211	169
Std. Predicted Value	-1.983	2.841	.000	1.000	169
Std. Residual	-3.612	2.460	.000	.991	169

a. Dependent Variable: Safety performance

Charts







Appendix C

Questionnaire Form

I am Aswalni bin Ishak (832797), a Master of Science Occupational Safety and Health Management (MOHSM) student from Universiti Utara Malaysia (UUM), currently conducting research regarding Safety Performance among Armoured Crews. In endeavoring to conduct this research data will be collected from Rejimen Ketiga Kor Armor Diraja (3 KAD).

Kindly complete the questionnaire enclosed. I assured you that it would not take longer than 45 minutes as your cooperation will contribute to improving the standard of safety of army as well as the regiment.

All data provided will be treated as confidential and will only be used for this academic research.

Thank you for your kind cooperation.

Your Sincerely.

ASWALNI BIN ISHAK
Matric No: 832797
Othman Yeop Abdullah Business Graduate School
Universiti Utara Malaysia (UUM)
06010 SINTOK
Kedah Darul Aman
019-6689152, sonydenko2001@gmail.com

Seksyen A: Butiran Peribadi.

Arahan: Sila tandakan (√) pada petak yang berkenaan.

1. Pangkat

☐ Tpr/LKpl	☐ Sjn/SSjn
☐ Kpl	☐ Lt M/Lt/Kapt

2. Umur

☐ < 25	☐ 36 – 45
☐ 25 – 35	☐ > 46

3. Tahap Pendidikan

☐ ≤ SPM	☐ Ijazah Sarjana Muda
☐ STPM/Diploma	☐ Sarjana/ PHD

4. Pengalaman Kerja

☐ < 1 tahun	☐ 8 – 15 tahun
☐ 1 – 7 tahun	☐ > 15 tahun

Bulatkan nombor respons yang paling sesuai untuk anda dengan menggunakan skala di bawah.

1 = Sangat tidak setuju	2 = Tidak setuju	3 = Tidak pasti	4 = Setuju	5 = Sangat setuju

Seksyen B: Prestasi Keselamatan

	Perkara	1	2	3	4	5
1	Saya akan menggunakan peralatan keselamatan yang diperlukan mengikut peraturan yang ditetapkan	1	2	3	4	5
2	Saya mengikut peraturan/ prosedur keselamatan yang betul di tempat kerja	1	2	3	4	5
3	Saya hanya bekerja jika saya yakin ia selamat	1	2	3	4	5
4	Kadangkala saya tidak mengikut aliran kerja yang betul kerana kekurangan masa atau menjadi kebiasaan dengan kerja itu	1	2	3	4	5
5	Saya menyertai latihan keselamatan, mengambil inisiatif untuk memahami pengetahuan atau maklumat tentang keselamatan	1	2	3	4	5
6	Jika saya menemui sebarang isu berkaitan keselamatan dalam rejimen saya, saya sentiasa memaklumkan kepada pihak pengurusan rejimen	1	2	3	4	5
7	Saya menggalakkan rakan sekerja saya untuk bekerja dengan selamat/membantu mereka melakukan kerja keselamatan mereka dengan baik	1	2	3	4	5
8	Saya secara sukarela melaksana tugas/aktiviti yang akan membantu meningkatkan keselamatan di tempat kerja	1	2	3	4	5

Seksyen C: Komitmen Pengurusan

	Perkara	1	2	3	4	5
1	Isu keselamatan diberi keutamaan tinggi dalam latihan	1	2	3	4	5
2	Peraturan dan prosedur keselamatan dipatuhi dengan ketat oleh rejimen	1	2	3	4	5
3	Tindakan pembetulan sentiasa diambil apabila rejimen diberitahu tentang amalan tidak selamat	1	2	3	4	5
4	Di tempat kerja saya Pegawai Pemerintah (CO)/Pemimpin Skuadron (OC) tidak menunjukkan minat terhadap keselamatan pekerja	1	2	3	4	5
5	Rejimen menganggap keselamatan adalah sama pentingnya dengan pelaksanaan tugasan	1	2	3	4	5
6	Pihak pengurusan rejimen tidak menghadiri mesyuarat/perbincangan keselamatan	1	2	3	4	5
7	Saya merasakan bahwa pihak pengurusan rejimen bersedia untuk berkompromi dengan keselamatan untuk tingkatkan penugasan	1	2	3	4	5
8	Apabila kemalangan nyaris dilaporkan, pihak pengurusan rejimen bertindak cepat untuk menyelesaikan masalah tersebut	1	2	3	4	5
9	Rejimen menyediakan peralatan peribadi yang mencukupi untuk kru (topi keledar, sarung tangan, goggle)	1	2	3	4	5

Bulatkan nombor respons yang paling sesuai untuk anda dengan menggunakan skala di bawah.

1 = Sangat tidak setuju	2 = Tidak setuju	3 = Tidak pasti	4 = Setuju	5 = Sangat setuju

Seksyen D: Pengetahuan Keselamatan

	Perkara	1	2	3	4	5
1	Saya tahu cara melaksanakan tugas saya dengan selamat	1	2	3	4	5
2	Saya tahu cara mengendalikan kenderaan perisai dan prosedur kerja standard	1	2	3	4	5
3	Saya tahu bagaimana untuk mengekalkan keselamatan kenderaan perisai	1	2	3	4	5
4	Saya tahu bagaimana untuk mengurangkan risiko kemalangan/insiden semasa mengendalikan kenderaan perisai	1	2	3	4	5
5	Saya tahu apakah bahaya yang berkaitan dengan pekerjaan saya/langkah berjaga-jaga yang perlu diambil semasa melakukan kerja saya	1	2	3	4	5
6	Saya tidak tahu apa yang perlu dilakukan jika potensi bahaya dikesan ditempat kerja	1	2	3	4	5

Seksyen E: Motivasi Keselamatan

	Perkara	1	2	3	4	5
1	Saya rasa adalah penting untuk menjaga keselamatan pada setiap masa	1	2	3	4	5
2	Saya percaya bahwa keselamatan semasa melaksanakan kerja adalah isu yang sangat penting	1	2	3	4	5
3	Saya rasa perlu berusaha untuk mengurangkan kemalangan/insiden semasa menjalankan kerja	1	2	3	4	5
4	Saya percaya keselamatan boleh dikompromi untuk tingkatkan tugasan	1	2	3	4	5
5	Saya merasakan adalah penting untuk menggalakkan orang lain menggunakan amalan selamat	1	2	3	4	5
6	Saya merasakan adalah penting untuk mempromosikan program keselamatan	1	2	3	4	5

Appendix D

Picture of Physical Data Collection