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THE IMPORTANCE OF MIXED METHOD IN TERRORISM STUDY

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ABSTRACT

This research presents a systematic review of the importance of mixed methods in terrorism studies. This paper aims to show the importance of using mixed approaches on terrorism literature. In this regard, I argue that mixed methods play an essential role in advancing terrorism studies because by using qualitative and quantitative method approaches in the same analysis, the scholar can integrate the power of both methodologies and translate the results into a helpful solution. I offer an overview of this field of research in this study. To defend this argument, I prepared two datasets and analyzed them quantitatively. A second quantitative analysis was conducted, focusing on the cases of Japan and Korea, which emerged from the first analysis and differed from the other examples. Accordingly, with quantitative analysis focusing on the cases of Korea and Japan, I will show why quantitative analysis alone is insufficient for terrorism studies. I then discuss the main results of this research and explain why the mixed method approach is essential in terrorism studies.

Keywords: Mixed Method, Terrorism Studies, Qualitative Method, Quantitative Method

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TERÖRİZM ÇALIŞMALARINDA KARMA YÖNTEMİN ÖNEMİ

ÖZET

Bu araştırma, terörizm çalışmalarında karma yöntemlerin öneminin sistematik bir incelemesini sunmaktadır. Araştırmada, karma yöntemlerin terörizm araştırmalarının ilerlemesinde önemli bir rol oynadığı, karma yöntem ile araştırmacının aynı analiz içerisinde nitel ve nicel yöntemleri kullanarak, her iki metodolojiyi birleştirdiği ve sonuçlarını yararlı bir çözüme dönüştürebildiği savunulmaktadır. Bu argümanı savunmak maksadıyla; iki veri seti hazırlanmış ve nicel yöntem ile analiz edilmiştir. İlave olarak, ilk analiz sonucunda ortaya çıkan ve diğer örneklerden farklılık gösteren Japonya ve Kore örneklerine odaklanılarak ikinci bir nicel analiz yapılmıştır. Kore ve Japonya örneklerine odaklanan bu analizle, terörizm çalışmaları için tek başına nicel analizin neden yetersiz olduğunu gösterilmiştir. Daha sonra bu araştırmanın ana sonuçlarını tartışılmış ve terörizm çalışmalarında karma yöntem yaklaşımının neden gerekli olduğunu anlatılmıştır.

Anahtar Kelimeler: Karma Yöntem, Terörizm Çalışmaları, Nitel Yöntem, Nicel Yöntem

INTRODUCTION

There have been epistemological and methodological debates in social sciences for many years. These debates also continue in terrorism studies. To understand the reasons for this discussion, it is necessary to look at the epistemological dimensions of the debate. This paper will briefly introduce the philosophical supporting structures, customs of epistemologies, and three research approaches. Learning epistemology is crucial because social sciences and terrorism studies may only be interpreted meaningfully if there is clarification about the decisions that have been made that affect the study results. Some of these decisions are based on some main philosophical principles, albeit not always consciously.

I present arguments for the utility of the mixed method approach in terrorism analysis, and explanations and critiques of influential current mixed approaches in terrorism studies are given, providing essential lessons on internal and external validity. I discuss how a mixed method approach could improve the use and effect of work on the analysis of terrorism by appealing to audiences through analytical persuasions.

The main purpose of this research is to explain the use of mixed approaches in developing a system for terrorism studies. By using qualitative and quantitative methods in the same analysis or research, the scholar can integrate the power of

both research approaches and translate the results into a practical solution (Neuman, 2007).

The main research questions of this research are why is the mixed method important in the terrorism study? And what is the benefit of the mixed method for terrorism studies?

This article examines the benefits of the mixed-method approach in terrorism studies. This research concludes that further studies are essential to obtain a more comprehensive analysis about terrorism study with a mixed-method approach. The first step of the introduction is to explain epistemology.

EPISTEMOLOGICAL CONSIDERATION

The orientations of social sciences scholars to the subjects are shaped based on their epistemological views. Epistemology explains directions of "knowing" and why the researchers know, what the researchers know, and who could be an apprehender (Berryman, 2019). Epistemology, fundamentally and simply, means the philosophical research of the essence, basis, and boundaries of human knowledge. Epistemology is considered one of the four main branches of philosophy, along with metaphysics, rationality, and morality (Simon, 2015). Epistemology is about how the researchers understand what the researchers know. In research philosophy, there are several approaches in social science. However, my paper will focus on positivism, interpretivism, and pragmatism.

Positivist scholars generally think that reality is separated from human awareness. There is a distinction between the "knower" and the "known," and by repeated observation, it is possible to discover cause-and-effect relations between phenomena (Berryman, 2019: 282). Positivist researchers assume that reality could be discovered.

On the other hand, interpretivist scientists identify the earth differently and explore several realities and the "knower's" relationship with known, findings clarification, comprehension, and significance rather than cause and effect (Berryman, 2019). Interpretivist researchers assume that reality is disclosed by social constructions, vocabulary/ meaning, mutual knowledge, and other social communications (Berryman, 2019: 286).

Finally, pragmatists criticize interpretivists and positivists. Pragmatist supports that every awareness researchers obtain from the five senses is filtered by the researchers' constructs to explain it, so there is no way to define or even describe sensations without understanding them (Quine, 1951). It means hypothesis and

study are not just separable, but theory influences both the evidence that the scientists are focused on and how the researchers view them (Quine, 1951). Dewey supports a perspective that denies the binary epistemology and metaphysics of modern philosophy in favor of a realistic theory that regards knowledge as a result of the successful adjustment of the person's organism to its world (Dewey, 1999). Pragmatism is about action and change and the interaction between “knowledge” and “action” (Goldkuhl, 2012; Neuman, 2007). This observes the world and makes it suitable as the basis for research approaches that intervene in the world (Goldkuhl, 2012). Methodologically, pragmatism is correlated with asking as the primary type of investigation. The primary type of investigation throughout interpretivism would be field analysis (Klein and Myers, 1999; Yvonne Feilzer, 2010) and the production of evidence through perception. Pragmatism data is produced and used for both “assessment” and “intervention” (Neuman, 2007). Likewise, even if positivism can be applied to mixed studies, it seems ideally adapted for quantitative studies (Goldkuhl, 2012). All paradigms are inclined towards comprehension, but there is a significant difference: in interpretivism, “*knowledge*” is seen as a meaning of its own; in pragmatism, it is seen as integral in the “*development of life*” (Dewey, 1931; Goldkuhl, 2012).

In general, most positivist scientists use quantitative research methods in their research. Most interpretivist scientists benefit from the qualitative method. Finally, most pragmatists benefit from the mixed method in their research. Pragmatism has gained important support as a position for researchers with mixed methods (Hall, 2013; 5; Yvonne Feilzer, 2010). The mixed method approach pragmatism is oriented toward the “actual world” to solve practical issues rather than assumptions about the nature of knowledge (Yvonne Feilzer, 2010).

METHODOLOGICAL DEBATE IN SOCIAL SCIENCE

The main characteristic of scientific research is methodology. Thanks to this characteristic, scientific research is separated from prejudices and assumptions. There are two main methodologies in scientific research (Gerring, 2011): qualitative and quantitative. The first is the method in which it is possible to provide answers within the context of the phenomenon investigated (Hanson, 2008). Second, it is thought that it is possible to systematically test the suggestions related to the phenomenon investigated (Hanson, 2008; Elman, Gerring and Mahoney, 2016). For a long time, there have been several debates in the social sciences about the validity of one or the other of the two main paradigms, positivist/quantitative and

interpretivist/qualitative, in social science (Cherryholmes, 1992; Tashakkori and Teddlie, 1998).

The two methods differ in terms of reasoning. The quantitative method is nomothetic. However, the qualitative method is ideographic (Gerring, 2011). There are three differences between these two methods. First is explanation (quantitative) and understanding (qualitative). Second is discovered knowledge (quantitative) and constructed knowledge (qualitative). The third is the individual influence of investigators on examination (qualitative) or not (quantitative) (Shareia, 2015; Elman, Gerring and Mahoney, 2016).

The distinction between these two methods has been discussed for a long time. According to Hanson (2008), the discussion about qualitative and quantitative is separated into four groups.

- 1) Subjectivity (mostly qualitative) versus Objectivity (mostly quantitative)
- 2) Systematization
- 3) Quantification
- 4) Generalization

Particularly with the "behavioral revolution," quantitative analysis has begun to dominate social science (Bond, 2007). In recent years, the most widely used research method in social sciences is the quantitative research method, and one of the most important reasons is technological developments. There are doubts about the scientific nature of the findings that can't be proven statistically (Mahoney, 2007). Social science researchers analyze their findings with various statistical tests and present them using quantitative research methods. However, over time, an important limitation of quantitative research has emerged, and it is that research results in social sciences were not enough guiding in implementations in the field of social science.

Although quantitative research results have revealed some generalizable information, this information is general. Therefore, the quantitative method did not provide practical information and recommendations to implementers. As a result, the qualitative research method has become an alternative. Qualitative research approaches the question or topic from a more subjective point of view, and during these approaches, subjective experiences are valuable. In qualitative studies, the investigator acts as a data collection tool, and investigators benefit from subjective experiences (Huta, 2016; Ortner, 2016). Therefore, in qualitative research, it is not expected to present the findings, observations, and interviews without the researcher's comment (point of view).

Sandelowski, Docherty, and Emden (1997) stated that validity in qualitative research attempts to understand how honest the researcher is. Qualitative research is valid as long as the researcher can convey what they have seen, heard, and understood. This type of research aims to obtain more descriptive, detailed, and in-depth information than quantitative research. During this research process, researchers have to be subjective (Ortner, 2016; Sandelowski, Docherty and Emden, 1997).

One of the quantitative method's most important characteristics is that generalization raises important limitations. Because of its main feature of producing generalizations, obtaining deep knowledge with quantitative research is difficult. This limitation of quantitative research can be overcome through qualitative research. In particular, deeper information can be obtained by revealing one's subjective experiences.

Qualitative research has several research concepts. These are ethnography, anthropology, situation research, interpretive research, action research, descriptive research, and content analysis (Mahoney, 2007; Storey, 2007; Smith et al., 2008). All these ideas have similar forms in terms of analysis systems. Therefore, qualitative research is considered a system that covers all of these approaches (Storey, 2007).

During the debates, several attempts have been made in social science to bring peace between quantitative and qualitative approaches (Tashakkori and Teddlie, 1998; Hall, 2013). In this process, "pacifists" emerged. "Pacifists" argued that these two major methods were not contradictory and supported that qualitative and quantitative methods could work together (Guba and Lincoln, 1994). This paradigm of pacifists was called pragmatism. Pragmatists have found the mixed method as an alternative to the debates between the two approaches.

The mixed-method research approach integrates qualitative and quantitative research methods (Creswell, 2014: 2; Hall, 2013). The author collects both quantitative and qualitative data, combines both of these methods, and then develops conclusions based on the cumulative characteristics of both data sets to explain study concerns (Creswell, 2014: 2; Berg-Schlosser, 2012). Some scholars, such as Tashakkori and Teddlie (2009), show triangulation as a mixed-method data analysis method. Triangulation applies to the integration or correlation of multiple data points, data collection and evaluation techniques, research methods, researchers, and inferences arising at the study's end (Teddlie and Tashakkori, 2009; 32; see also Berg-Schlosser, 2012).

Inductive reasoning plays an important role in the qualitative approach, and deductive reasoning plays an important part in the quantitative research method. However, mixed methods engage with both inductive and deductive approach processes (Teddlie and Tashakkori, 2009; 31). It is possible that mixed-method approach studies could be considered the Third Way, the Third Study Paradigm, and the Third Methodological Trend by various individuals writing in social science (Teddlie and Tashakkori, 2009: 11; Gorard and Taylor, 2004; Small, 2011). A key assumption of a mixed-method approach is that when a researcher connects statistical trends with narratives and individual experiences, this combined force provides a better understanding of the problem of study than any type of information alone (Creswell, 2014; 20; Clark and Creswell, 2008). It is ineffective to use qualitative and quantitative approaches alone to achieve an understanding of the problem. However, it is important to understand the advantages and disadvantages of qualitative and quantitative approaches before conducting mixed-method research. Researchers do not analyze personal experiences and significant or in-depth analyses of personal perspectives during the quantitative approach. The researchers do not generalize to a large population from a small group during qualitative research processes (Small, 2011).

For a long time, many social science scholars have benefited from mixed methods. The mixed method approach is less known than qualitative and quantitative research methods. However, the mixed method eliminates many of the weaknesses of qualitative and quantitative research. In the mixed method approach, scholars integrate findings and make inferences using both quantitative and qualitative approaches in a single study. The mixed method approach can offer excellent and powerful inferences (Pluye et al., 2011; Berg-Schlosser, 2012). Mixed-method research offers a chance for a wider range of differing views.

There are three basic designs in mixed-method research. Basic mixed-method designs are the core structures that underlie all mixed-method research. Most mixed-method articles published in scientific journals use one of these three basic designs. These basic designs are convergent design, explanatory sequential design, and exploratory sequential design (Creswell, 2014; 35; Clark and Creswell, 2008). The first basic design is convergent design. The convergent model includes collecting and evaluating quantitative and qualitative data. The goal is to combine the findings of quantitative and qualitative data analysis (Creswell, 2014; 36).

The second basic design is explanatory sequential design. The sequential explanatory model aims to begin with a quantitative stage and then perform a second

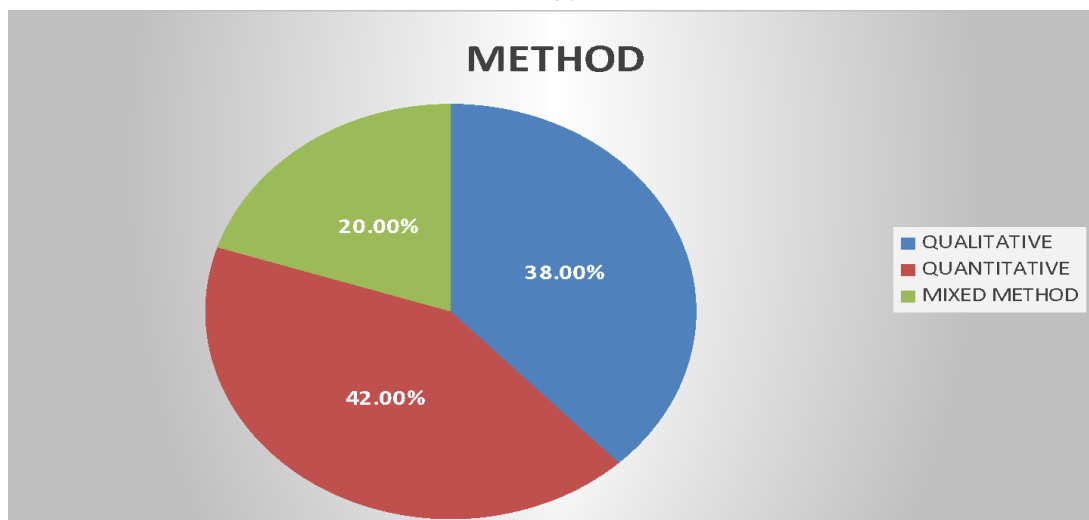
qualitative stage to clarify the quantitative results (Creswell, 2014; 38).

The third and last basic design is the exploratory sequential design. The sequential exploratory model aims to first investigate a problem by collecting and evaluating qualitative data, creating an instrument or method, and following up with a third quantitative step (Creswell, 2014; 39).

LITERATURE REVIEW

As seen in the introduction, the paradigm debate between quantitative and qualitative approaches in social sciences has continued for many years. A mixed method has emerged and affected many social science scholars as an alternative to these two approaches. There is a debate about methodology in the terrorism study as in the social sciences. A table was prepared to see the methodological distribution in the terrorism study (Figure 1). Figure 1 covers 61 academic studies written between 2009-2019. All studies were taken from the Web of Science. These 61 academic articles were read, and then research methods were analyzed. As can be seen in the table, there is the dominance of qualitative and quantitative approaches in terrorism studies. Mixed research methods follow these two research approaches.

Figure 1. Distribution of methodology in terrorism literature between 2009-2019



In this section, the place of these three different research methods in terrorism studies is tried to be shown.

Qualitative

One of the important methodologies in terrorism study is the qualitative method. Scholars of terrorism, benefiting from the qualitative approach, emphasize the importance of interviews, field research, and autobiography analysis of terrorists.

Silke and Crenshaw think terrorism studies still lack the foundation for comprehensive primary research based on interviews and life stories with people engaged in terrorist activities (Silke, 2001; Crenshaw, 2012; Davies, 2010: 23). Altier, Horgan, and Thoroughgood (2012) think that qualitative interviews could also provide a deeper insight into the cognitive processes at work, as well as how and why certain variables combine to affect the incentive structure and decision-making of terrorists that, for instance, are about to disengage, and former terrorists in the precipice of re-engagement in terrorism activities (see also Cordes, 1987).

Similarly, According to Jones (2007), asking terrorists was the best way to find out terrorists' involvement in using weapons of mass destruction. So, in other words, he implied the importance of interviews with terrorists. Jones (2007) argues that the absence of primary qualitative research in terrorism studies has significantly delayed methodological advances in terrorism literature (see also Schuurman, 2020). Andy Jones (2007) supports that 80 % of terrorism literature is not centered systematically. He said that most terrorism literature relied on secondary sources and data. He highlighted the importance of qualitative interviews to understand in-depth terrorism and obtain new information about terrorism (Jones, 2007; Cordes, 1987).

On the other hand, scholars such as Yılmaz (2007) and Teymur (2009) think that qualitative autobiography analysis plays an important role in terrorism studies. They support that research on autobiographical narratives provides not only additional data points for the analysis of human psychological problems but also offers valuable information into the internal frameworks, mechanisms, and strategies of terrorist organizations. These two scholars argue that terrorist autobiographies offer valuable information on the origins, motives, and family histories of particular terrorists (Teymur, 2007; Yılmaz, 2009).

The problem of terrorism has attracted the attention of the public and the media, but empirical research on terrorism is still clearly sketchy. Because of this situation, most of the literature on terrorism is based on the media or newspaper analysis and secondary data or sources (Lützing, 2012; Schuurman, 2020). Lützing (2012) implied the importance of the qualitative method and the importance of interviews with terrorists to understand terrorism phenomena. She supports that the qualitative interview approach allows the investigator to grasp the contextual constructs of significance and the underlying framework of practice in the sense of biographical accounts, which provides the benefit of allowing the

interviewees themselves to arrange the context and to express as much information as they want to reveal (Lützing, 2012; see also Davies, 2010). Another positive effect of interviewing was accomplished by concentrating the interviews primarily on the perspectives of individuals.

Similarly, Horgan thinks terrorism studies do not benefit much from individual levels (Horgan, 2012). Horgan argues that face-to-face interviews with terrorists can alleviate this deficiency. Interviews are important to understand the causes of the processes of terrorism, how continuity is achieved, and the terrorists' decision-making processes. According to Horgan (2012), these interviews have to be especially in-depth. Horgan (2012: 9) also supports that first-hand data collection plays an important role for terrorism studies' future (Horgan, 1997).

Likewise, Dolnik (2011) supports that few terror analysts interview with terrorists and spend time in conflict zones. Dolnik argues that terrorism studies scholars rarely bother to interview and partake in 'terrorist activity' or spend time on the ground in the regions most impacted by terrorist activities and attacks (Dolnik, 2011). According to Dolnik (2011), there are many aspects in which field research on terrorism can lead to our knowledge of the triggers, complexities, and forms of terrorism and political violence. He thinks that the main reason is given the highly emotional and subjective nature of the terrorism phenomenon, available data tends to be strongly politically manipulated by all sides, requiring a higher standard of verification to ensure the reliability and accuracy of findings (Dolnik, 2011). Field studies play an important role in terms of the reliability and accuracy of the findings (Dolnik, 2011). Dolnik believes that field studies play a very important role in the reliability of terrorism research and the accuracy of the findings. He also highlights the importance of interviews with terrorists (Dolnik, 2011).

Quantitative

One of the most dominant methodologies in terrorism studies is the quantitative method. In recent years, we can see that most research in terrorism literature has benefited from the quantitative method approach (Figure 1). In other words, it has been heavily involved in quantitative studies in terrorism studies. Many scholars emphasize the importance of quantitative methods in terrorism studies.

LaFree and Freilich (2012) assume that changes to digital data sources and qualitative methods of analyzing terrorism have begun to change rapidly. The authors think that systematic criminologists involved in the study of violence through nations have been restricted to cross-national data gathered by either the United Na-

tions, the World Health Organization, INTERPOL, and various international victimization or self-reported crime studies for many years (LaFree and Freilich, 2012; see also Gruenewald et al., 2015). Quantitative extremism researchers use open-source data and software typically reflective of the larger universe they are researching (Fowler, 1980). Similarly, Andre Silke (2001) thinks that in terrorism literature, most sources heavily rely on qualitative and journalistic approaches, which lack the consistency and quality generally expected of conventional social science research. The author argues that the quantitative approach is beneficial for looking at relationships and patterns and explaining these patterns with numbers and statistics (Silke, 2001).

The quantitative approach could provide powerful tools for analysis and feedback on terrorism, which has become one of the most daunting problems of the modern age. Still, a quantitative approach in terrorism has often been desperately lacking (Fowler, 1980). Terrorism analysis – and in particular, research that results from the different incident records accessible – appears to be fairly good at answering concerns about who, when, and where terrorist activity happens (Silke, 2001; LaFree and Freilich, 2012).

Similarly, Reid and Chen (2006) support that an efficient perspective of terrorism research to reveal the intellectual structure of the field and empirically discern the distinct set of cores researchers, institutional affiliations, publications, and conceptual fields can help us gain a broad understanding of paths to terrorism (see also Reid, 1997). In this direction, Reid and Chen (2006) think that quantitative studies play an important role in terrorism studies. They argue that it is important to work with several scholars from many different fields, such as communication, behavioral science, and computer science, and that cooperation could be beneficial for the future of terrorism studies. The authors also highlight the importance of data mining, analyzing, charting, and visualizing in terrorism research (Reid and Chen, 2006; Gruenewald et al., 2015; Glaw et al., 2017). Likewise, Lai and colleagues (2019) think that in-depth research and data analysis on terrorist attacks will help expand our knowledge of threats and provide valuable information to counter-terrorism. The authors think that from the statistics on terrorist attacks and the factor analysis, it is possible to summarize the extent of the risk of terrorist attacks (Lai et al., 2019). They support the importance of quantitative methods in terrorism studies since terrorism impacts financial, monetary, technological, personal, spiritual, and other facets. Its complex nature makes it difficult to describe its harmfulness in a few simple cases (Lai et al., 2019).

Finally, Leiken and Brooke (2006) think that many studies about terrorism in literature have not generated significant new data or information. Because most of the scholars were primarily reworking old material (Leiken and Brooke, 2006). Many researchers about terrorism rely solely on media reports instead of creating and analyzing a data set. The shortage of individual data collection and analysis has been a major concern (Leiken and Brooke, 2006). This problem can be overcome with the help of the quantitative method. Therefore, the quantitative method plays an important role in the study of terrorism.

Mixed methods in terrorism studies

In recent years, the mixed method has been used as an alternative to quantitative and qualitative research methods. İsmail Yılmaz (2007) thinks that the analysis of terrorism includes several methodological issues (see also Bakker, 2012). Consequently, if a study in any area aims to progress from one point to the next level of understanding, terrorism research has failed to achieve the goal (Yılmaz, 2007). Yılmaz (2007) thinks this methodological problem could be solved using mixed methods. To overcome these analytical difficulties, he highlights multivariate statistical techniques to perform some of the operations that naturally exist in experimental designs (Yılmaz, 2007).

Tiwari and colleagues (2015) prepared a questionnaire to assess the impact of violence on women. The results of their survey were analyzed by quantitative method. However, the results of this survey did not provide deep and detailed information about women's experiences. Therefore, they conducted 200 face-to-face interviews with women for more detailed information (Tiwari et al., 2015). Similarly, Rabiah Ahmad and Zahri Yunos (2012) think that mixed-method research could improve the rigor and explanation of the study results, bringing the results to a conclusion. The authors argue that by using both methods in the same analysis about terrorism, the authors were able to incorporate the power of both methodologies and translate the results into a workable solution. They suggest the utilization of qualitative and quantitative research methods, and their conclusion found that mixed methods promoted both the “*development of the theory*” and the “*evaluation (or verification) of the theory*” (Ahmad and Yunos, 2012; Norris and Grol, 2018).

Charlene Yauch and Harold Steudel (2003) think that the main goal of the qualitative approach is to gain an in-depth understanding of a condition or phenomenon. On the other hand, the quantitative approach aims to accurately measure respondents' actions, information, and perception (Yauch and Steudel, 2003). They

think that the Mixed Method Strategy aims to answer questions that could not be addressed by qualitative and quantitative research methods alone while adding breadth and depth to the analysis (Yauch and Steudel, 2003). Yauch and Steudel (2003) support that the collection of cultural factors resulting from the use of qualitative and quantitative approaches was more detailed than would have been done through qualitative assessment alone.

Yauch and Steudel (2003) assume that using approaches from both study paradigms has made it possible to understand cultural artifacts and practices better, but more specifically, the underlying cultural beliefs and perceptions. They recommend that qualitative or quantitative approaches are used to deliver more reliable outcomes than could be obtained by using a static cultural evaluation methodology (Yauch and Steudel, 2003; Norris and Grol, 2018).

Greene, Caracelli, and Graham suggest that the application of qualitative and quantitative paradigms, in a complementary manner, has contributed to a deeper understanding of organizational culture, allowing the study of beliefs and perceptions underlying actions within organizations (Greene, Caracelli and Graham, 1989). According to Greene, Caracelli, and Graham (1989), there are three purposes for the research of the mixed-methods approach:

“(a) triangulation, corroborating data and obtaining convergent validity; (b) complementarity, explaining more fully the results of the analyzes; and (c) development, guiding further data collection, sampling, or analysis.”

Kai Thaler (2017) thinks that mixed-method research can improve the adaptation of theories and empirical studies to the complexity of social reality and improve understanding of the causes, consequences, and potential solutions to violence and conflict (Thaler, 2017). He suggests that the framework, public relations structures, or context within which social action takes place can be empirically analyzed using either quantitative or qualitative approaches. In contrast, quantitative methods can render the framework more legible. Within the context of the system and the process, the behavior comes from the actions of the individual agents (Thaler, 2017). To catch terrorists' motivations, scholars need to know about the thoughts and thinking processes of terrorists, a job that qualitative approaches are often better suited. On the other hand, quantitative data may also help the qualitative method get "inside the minds " of terrorists (Thaler, 2017). By using only one method, terrorism study scholars may have a myopic view of a research topic that either neglect the point of abstraction of social interaction processes or fails to examine broader patterns that would allow for generalization from work instead

(Thaler, 2017; see also Bakker, 2012).

John Horgan argues that most terrorism literature is written with little research. He said that most of the scholars about terrorism use case study methods in their research. However, case studies are not enough to understand terrorism. He also supports the cooperation among disciplines in terrorism studies. Because of that reason, he thinks that mixed-method research plays an important role in the future of terrorism studies (Horgan, 2008; Horgan, 1997).

According to Merari (2007), “*the geographical, ideological, cultural, contextual and operational diversity of the problem cast doubt on the justification for identifying terrorism as a fairly homogeneous phenomenon.*” This complex structure removes terrorism from the domination of a single method (Merari, 2007).

In addition to that issue, the structure of terrorism, there is hardly a trend that allows for generalizations. Also, this structure is not suitable for qualitative case studies. Because most terrorist organizations are small and different, this makes it difficult to collect systematic information about terrorist organizations (Merari, 2007).

Merari thinks that in the lack of comprehensive and first-hand data, the prevalent theoretical notion of the psychological and sociological features of terrorists and terrorist groups is often highly speculative (Merari, 2012; Merari, 2007). This major problem can be overcome by combining systematic, quantitative, and qualitative research methods, in other words, mixed methods (Merari, 2012).

Similarly, Reid argues that most of the research about terrorism has been presented from a one-sided approach (Reid, 1997). This situation reveals the necessity of a mixed method in terrorism study. Integration of quantitative and qualitative analysis, mixed approach, methods used to examine how a field evolves, how its concepts become distributed or sold, and which theories are used and implemented in decision-making processes (Reid, 1997). Reid (1997) thinks that bibliometrics was used to provide a quantitative measure of the growth of specialization and aided in the analysis of how it evolved. In addition to bibliometrics, case studies could play an important role in comparing terrorist organizations (Reid, 1997).

Unfortunately, there are deficiencies in much of the academic research using mixed methods in terrorism studies. Although many articles claim to use mixed methods, they are under the dominant influence of qualitative research methods. This is the most important problem of mixed-method research in the terrorism

studies literature. There is great dependence on qualitative research and journalistic methods, which lack the effectiveness and dependability generally expected in traditional social sciences. The limited research appeared to lack intensity and focused mostly on journalistic reviews combined with descriptive statistics (Silke, 2001).

Another important problem is that many mixed methods papers are far from systematic studies and are closer to journalistic studies (Silke, 2001; Merari, 2007; Jones, 2007). In addition, secondary sources in articles are another major problem. The bulk of mixed-method research in terrorism studies published so far are either based on media analysis or, at most, on second-hand sources given by security services. Dependence on these secondary sources leads to many limitations. In the lack of systematic and first-hand knowledge, the prevalent theoretical assumption of the sociological and psychological features of terrorists and terrorist groups is often highly speculative (Merari, 2007).

However, the mixed method is developing day by day in terrorism studies. There is much room for improvement in the mixed methods research in terrorism studies. Given the complex nature of terrorism, I think systematic mixed-method research would be useful for studying terrorism. Instead of quantitatively or qualitatively examining terrorism, I propose a mixed-method methodology incorporating quantitative findings with qualitative findings is a more useful approach to providing detailed, complex accounts of terrorism. In this direction, two data sets were analyzed in this study. As a result of the quantitative analysis focusing on the cases of Japan and Korea, I will show why quantitative results need to be supported by qualitative analyses, as suggested by the mixed method, to reach deeper and more meaningful results in terrorism studies.

RESEARCH DESIGN AND RESULTS

As seen in the literature review section, the dominance of quantitative and qualitative studies has been observed in terrorism studies in recent years. The mixed method approach is the third after qualitative and quantitative studies. However, the number of studies benefiting from the mixed method is quite low. I think the mixed method is the one that best describes the phenomenon of terrorism and the effects of terrorism. I conducted some quantitative analysis to justify this idea. Due to the nature study, informed consent or ethics committee approval is not required.

Following this direction, two data sets were analyzed in the third section of this

paper. My first data set's level of analysis is a state-level analysis. The subject became then more specific, and the second data set was analyzed. The level of analysis of the second data set is the individual level. However, as a result of the analysis of the second dataset, it is revealed that there is a need for deeper information, which can be reached with the help of the mixed method. In short, I show that the results based on generalizations obtained only with quantitative methods are insufficient for terrorism studies. Quantitative results should be supported by qualitative methods that reveal people's subjective opinions, as the mixed method suggests.

Firstly, a dataset with four variables and 2100 observations was created. This dataset involves the human development index (HDIindex), security apparatus (securityAp), economic inequality (economicIn), and human rights (humanR). The dataset covers the period between 2004 and 2018. It involves 140 different countries from different continents and regions as observations.

Security apparatus, human rights, and economic inequality variables were taken from the 2018 data of the Fund for Peace. The human development index is taken from the United Nations development program's 2018 data.

The Security Apparatus measure recognizes security threats to the government, such as explosions, assaults or battle-related deaths, resistance groups, protests, coups, and violence or domestic/global terrorism. The rise of this variable indicates security problems in the country. The Human Rights variable defines the interaction between the State and its citizens to the degree that fundamental human rights are secured, and liberties are upheld and valued. The rise of this variable shows that human rights violations in the country have increased. The economic inequality variable recognizes inequality within the country's economic system, regardless of the economy's actual performance. The increase in this variable shows that the country's economic inequality has also increased. The human development index covers life expectancy at birth, expected years of schooling, mean years of schooling, and GNI (Gross National Income) per capita.

Ordinary least square regression analysis was performed. The security apparatus variable was chosen as the dependent variable in linear regression analysis. The human development index and human rights were chosen as the independent variables. The importance of the religion variable was chosen as a control variable. The formula of linear regression analysis is as follows;

$$security = \alpha + \beta_1 HDI_1 + \beta_2 HumanR_1 + \varepsilon$$

Table 1. Linear Regression Analysis between Security Apparatus and Human Rights

Dependent variable: securityAp

economicIn	0.289*** (0.022)
humanR	0.621*** (0.016)
HDindex	-1.623*** (0.251)
Constant	1.265*** (0.286)

Observations	1,968
R2	0.782

Note: *p<0.1; **p<0.05; ***p<0.01

As can be seen, linear regression analysis showed a highly significant relationship between dependent and independent variables. After these steps, variance inflation factor (VIF) analysis of the data was performed. VIF analysis indicates whether the variables are collinear or multicollinear. It is better to check this analysis result because there is an extreme situation, termed multicollinearity, where there is collinearity between three or more variables, even if no pair of variables has a particularly high association. It implies that there is continuity between the parameters of the predictor. The result of the regression model is unreliable in the presence of multicollinearity. The VIF score of this study is 2,26. Since the VIF score is less than 5, the model is not multicollinear. In other words, the result of the regression is reliable. Finally, the Breusch-Pagan test was performed to determine whether the model is heteroskedastic. Breusch-Pagan's test result was 4.1111. This result showed that the model is not heteroskedastic.

Figure 2. Linear Regression analysis between Security Apparatus and Human Rights

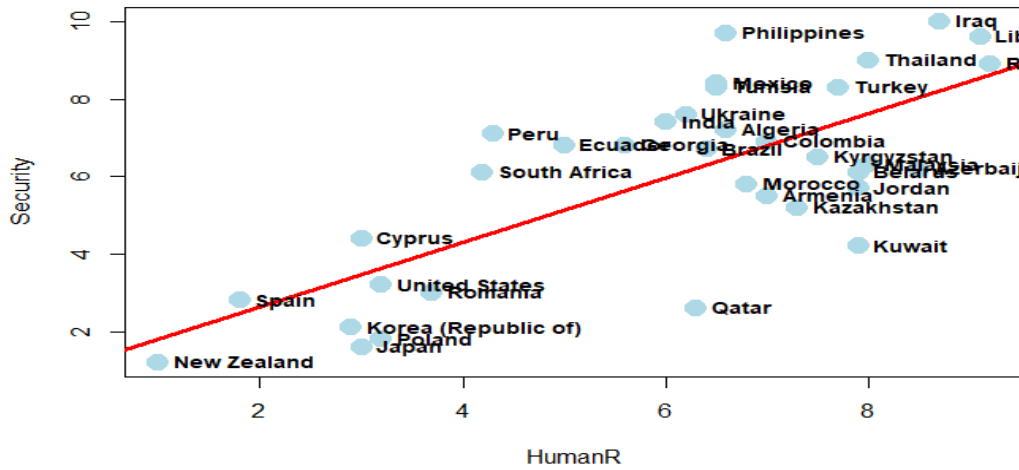
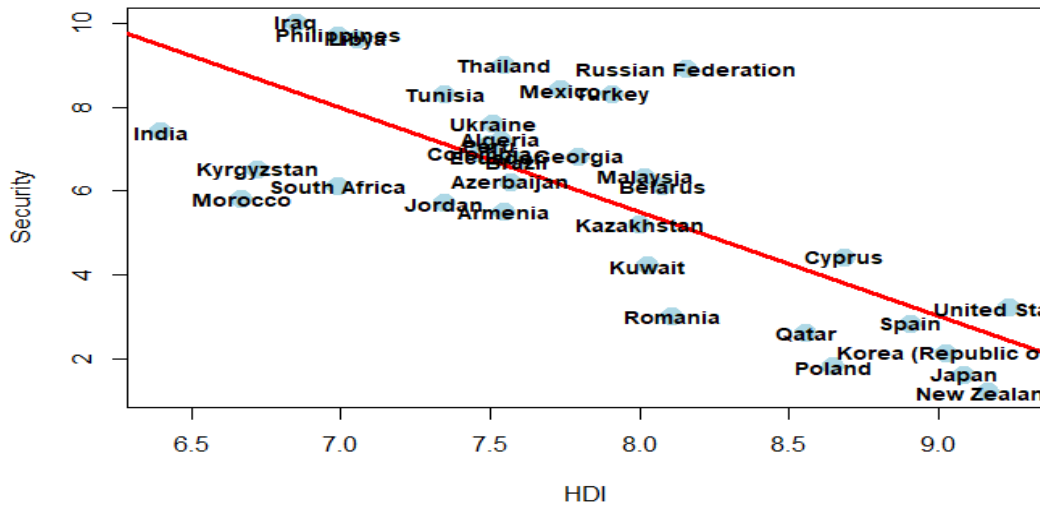


Figure 3. Linear Regression Analysis between Security Apparatus and Human Development Index



As seen from the analysis, it is expected that security apparatus or terror threat will be low in countries with high human development index. But in reality, this is not entirely true. With a low-security apparatus and high human development index, Japanese and Koreans fear terrorist attacks in their countries. According to the World Values Survey (2022), 79.8% of Japanese and 53.8% of Koreans fear terror attacks in their countries (Inglehart et al., 2022).

After these results, a second data set, including Korea and Japan, was prepared.

The World Value Survey covers 60 countries. However, no question about terrorism was asked in 5 of these 60 countries. Therefore, there are 55 countries left. This dataset involves 55 observations. This dataset involves four variables: the security apparatus (securityAp), the human development index (HDIndex), the importance of religion (religious), and worry about terrorism (TOTAL).

The security apparatus variable was taken from the fund for peace dataset. Fear of terrorism and importance of religion variables were taken from the world value survey wave 6. The human development index was taken from United Nations.

First, linear regression analysis was performed. The linear regression analysis result shows a highly significant relationship between the terrorism index and the fear of terrorism. In other words, countries with a high fear of terrorism are those with a high terrorism index. The formula of the second linear regression analysis is as follows;

$$Terrorism = \alpha + \beta_1 Survey + \varepsilon$$

Table 2. Linear Regression analysis Afraid of terrorism survey and terrorism index

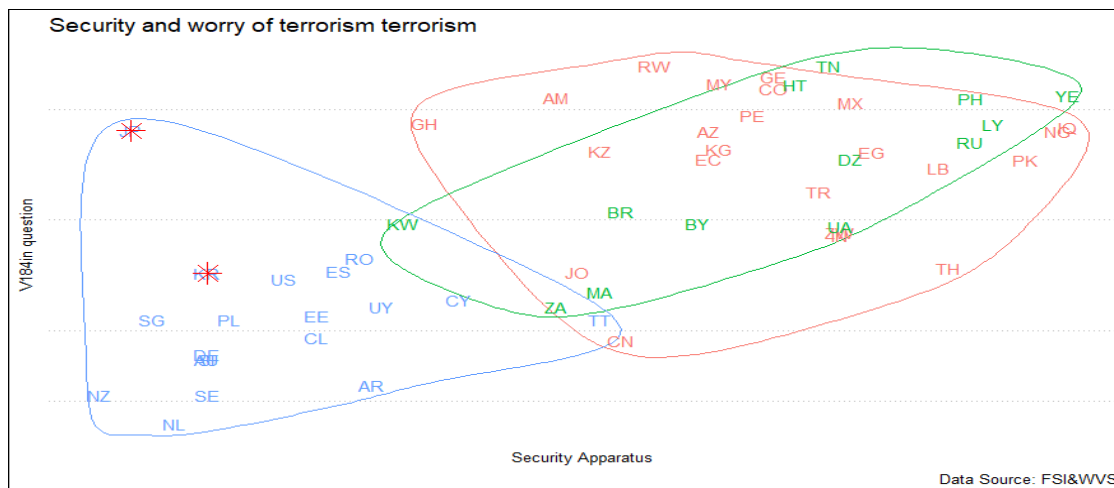
Dependent variable: securityAp	
TOTAL	0.041*** (0.012)
religious	-0.015 (0.012)
HDIndex	-13.164*** (2.382)
Constant	14.002*** (2.588)
Observations	55
R2	0.649
F Statistic	31.459*** (df = 3; 51)

Note: *p<0.1; **p<0.05; ***p<0.01

Thirdly, cluster analysis was performed based on the second linear regression analysis, and 55 countries were divided into three clusters. The first cluster includes countries with a low index of terrorism and a high afraid of

terrorism. The third cluster includes countries with high terrorism index and high afraid of terrorism. Japan and Korea are in the first cluster with a low terrorism index and a high human development index. However, these results do not fit exactly with the cases of Japan, or Korea, because these countries have not been faced with terrorist attacks for a long time. Nevertheless, 79.8% of Japanese and 53.8% of Korean participants in the world value survey reported that they fear terrorism in their country (Inglehart et al., 2022).

Figure 4. Cluster Analysis Result



It is difficult to distinguish the causes of terrorism fears among Japanese and Koreans with quantitative data analysis. To reveal the cause of this fear, deeper research should be added to this data analysis. As can be seen, quantitative research methods such as data analysis alone are insufficient to explain the phenomenon of terrorism and the reasons behind the fear of terrorism in Japan and Korea. In other words, using only quantitative research methods, it is difficult to find the reasons behind terrorism and its effects.

As seen in Korea and Japan, quantitative studies supported by qualitative research, such as interviews, could provide more general and in-depth information on the phenomenon of terrorism, one of the most popular issues in recent times. Therefore, the support of quantitative studies using the qualitative approach is important for the development and future of terrorism studies. In other words, the mixed method is suitable for understanding terrorism in-depth, and this approach is important for future terrorism studies.

DISCUSSION

Many findings were reached in this study. The first of these findings is a negative and significant association between the Human development index and the security apparatus. In other words, the increase in the human development index leads to decreased terrorism and other types of crime. In addition, as expected, there is a positive and highly significant association between economic inequality and the security apparatus. This finding means that increased economic inequality is associated with increased terrorism. The third finding is a positive and highly significant association between human rights violations and terrorism. In other words, the increase in human rights violations leads to increased security problems and terrorism.

The second data set was prepared on these results, and the study was further elaborated. As a result of the second analysis, there is a positive and highly significant association between the World Values Survey's question about fear of terrorism and the terrorism index. A negative and highly significant association exists between the human development index and terrorism. However, Japanese and Korean cases do not fit the results of these two analyses. Their human development index is high, and their terrorism and security apparatus are low. However, their fear of terrorism is high.

However, an in-depth explanation and interpretation of these unexpected results are not possible only with quantitative analysis methods, and qualitative methods are needed to obtain in-depth results. In short, supporting quantitative methods with qualitative methods, such as face-to-face interviews, is essential for more meaningful results in terrorism studies. In other words, mixed methods can play an important role in the future of terrorism studies.

The study's biggest limitation is no use of the qualitative research method. Deeper information can be obtained if more qualitative research is used in future studies, such as face-to-face interviews.

CONCLUSION

There has been a long-standing paradigm debate in the social sciences. This paradigm debate in the social sciences also continues in terrorism studies. However, methodological and conceptual problems both within and between academic disciplines created a gap in the knowledge about terrorism, fear of terrorism, terrorism studies, and terrorist organizations.

A variety of analytical obstacles exist in the analysis of certain forms of terrorism.

This is perhaps most apparent in the efforts to expose the views, motives, and goals of people involved in violent extremism and how they sometimes manifest themselves in problematic behavior. The literature review section shows that single-approach research methods mostly dominate terrorism studies.

Quantitative approaches continue to be used to analyze cross-national or cross-case differences in territorial aggression and conflict management among states and international organizations. At the same time, qualitative research techniques allow for the tracking of procedures, expose the intentions and actions of rulers, and allow for the textual analysis of agreements and resolutions (Thaler, 2016). In this perspective, each approach has some advantages.

In addition to its many advantages, qualitative research also has many disadvantages. The structure, objectives, tactics, and ideologies of most terrorist organizations are different. We have little chance of getting in-depth information about all these terrorist organizations. The most important limitation of qualitative research is time. Due to time limitations, the in-depth knowledge that we can obtain is limited.

Besides, many scholars benefit from terrorist interviews in newspapers. However, most interviews with terrorists posted in the digital or print media were intended to elicit a "soundbite" answer rather than to try broader and more nuanced perspectives. In fact, if attackers speak to the media, they aim to disseminate a different type of message based on the target audience. Therefore, the reliability of the information they obtain is controversial. There are many elements in terrorism, such as civilians, terrorists, soldiers, and states. It is difficult to make a study covering all these elements with qualitative studies.

However, there are some disadvantages of the quantitative approach in terrorism studies. Terrorism impacts financial, monetary, cultural, personal, spiritual, and other facets, and its complex nature makes it difficult to quantify its harmfulness in a few basic measures. The most important of these limitations is that, to date, cross-national comparative terrorism data have mostly been limited to a small number of highly industrialized western-style democracies.

One of the major disadvantages of the quantitative method is that terrorism is related to individuals and states. However, there is not enough data about individuals. In addition, subjective experiences and emotions are also important in studies that focus on individuals. However, it is difficult to explain this situation only with a quantitative approach.

When all the advantages and disadvantages of quantitative and qualitative research methods are considered, mixed research methods are more suitable for terrorism studies. In my opinion, the mixed method plays an important role in developing our knowledge about terrorism. Mixed method approach research is crucial because this approach offers both insight and breadth of evidence on specific issues of concern. Also, the mixed method results may not be more valid but are more understandable. The mixed research methodology is based on the potential strengths of both qualitative and quantitative research methods. This allows researchers to explore different perspectives and the current relationship between the different layers of multi-faceted research questions.

As seen above, the mixed method has emerged as an alternative to quantitative and qualitative approaches. Although single-approach studies currently dominate the literature, the number of studies utilizing the mixed-method approach is increasing. However, in this study, it was shown that only quantitative methods could not explain the fear of terrorism, one of the important subjects of terrorism studies, and the importance of supporting quantitative methods with qualitative methods, such as face-to-face interviews, in understanding the fear of terrorism was explained. In short, I tried to show why mixed methods are important in terrorism studies.

The overall conclusion regarding the terrorism forecasts published between 2009 and 2019 is that there is no consensus on the future of terrorism studies and that there is much room for improvement in the methodology and research in the field of terrorism. The mixed method provides a more systematic approach to improve the quality of foresight studies and enables researchers to understand in-depth how to assess, model, predict and answer the future terrorist threat.

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