



The Global Perspective on Cold Case Homicides: A Qualitative Assessment of Policing Policies, Procedures and Practices

Dr Muhammad Aslam ^{1*}, Dr Christian Kaunert ², James Barker ³, Dr Francis Dodsworth ⁴

¹ Department of Criminology, Politics & Sociology, School of Law, Social and Behavioural Sciences, Kingston University London, UK, School of Law and Government, Dublin City University, Ireland

² School of Law and Government, Faculty of Humanities and Social Sciences, Dublin City University Ireland

³ Department of Chemical and Pharmaceutical Sciences, School of Life Sciences, Pharmacy and Chemistry, Faculty of Health, Science, Social Care and Education, Kingston University London, KT1 2EE, United Kingdom

⁴ Department of Criminology, Politics and Sociology, School of Law, Social and Behavioural Sciences, Faculty of Business and Social Sciences, Kingston University London, KT1 2EE, United Kingdom

* Corresponding Author: **Dr Muhammad Aslam**

Article Info

ISSN (online): 2583-6536

Volume: 05

Issue: 02

March-April 2026

Received: 12-01-2026

Accepted: 10-02-2026

Published: 08-03-2026

Page No: 96-105

Abstract

The Global perspective on cold case homicide sheds light on contemporary policing policies, procedures and practices to investigate cold case homicides in the selected six jurisdictions i.e. the UK, USA, Canada, Pakistan, Australia and New Zealand. Cold case homicides present significant challenges for law enforcement agencies worldwide, requiring specialised investigative approaches, forensic advancements, and policy adaptations. This study provides a qualitative assessment of policing policies, procedures, and practices in cold case investigations from a global perspective. The findings underscore the disparities in investigative resources, legal constraints, and procedural approaches that impact case clearance rates. Additionally, the study explores emerging best practices, such as the use of scientific developments, DNA advancements, and public engagement in solving historical cases. By offering a comparative analysis, this research contributes to the broader discourse on transnational criminal justice cooperation to enhance the effectiveness of cold case investigations worldwide.

DOI: <https://doi.org/10.54660/IJL.2026.5.2.96-105>

Keywords: Global perspective, cold case homicides, investigative methods, policing policies, cultural attitude

Introduction

The controversial term “Cold Case Homicide” is complex and difficult with varying concepts, definitions and statute of limitations among law enforcement agencies and academic circles even within one jurisdiction (Walton, 2021; Allsop, 2018; Innes & Clarke, 2009; Arntfield, 2022; Bennett, 2024) ^[53, 6, 37, 11, 15]. It was first introduced in the USA during the 1990s and the British law enforcement agencies adopted the term subsequently (Innes & Clarke, 2009; Gaylor, 2002) ^[37, 34]. Most academics and policing professionals consider “Cold Case Homicides” are those cases that have been reported to the police and investigated previously, but due to lack of viable leads, they remained unsolved (Allsop, 2018; Innes and Clarke, 2009; Walton, 2021) ^[6, 37, 53].

As opinion and observation, the above definition of the cold case does not convey a full sense of what cold case homicide is, because it is not always necessary that when all leads are exhausted cases can go cold. This may be the case in Western jurisdictions and others, but not in Pakistan. Sometimes the leads are there and clear, but due to corruption and the absence of enforcement cases go cold. Cases also go cold when political pressure is excessively exerted on policing, especially when the police force is not an independent institution and bribery becomes common practice. Secondly, homicides also go cold due to

the lack of policing expertise and professionalism. Adcock & Stein (2013)^[3], state that the homicide case can become cold when all viable leads are exhausted, and we do not know where to turn. Others label cold case homicides as those cases in which justice has not been served yet. In the current study, the definition of untraced homicides is defined as those cases in which the real offender is not identified, investigated, and or prosecuted yet, and justice has not been served yet. Walton (2006)^[52] defines cold case homicides as those cases in which the case is reported to the police and investigated by law enforcement agency, but no new evidence and suspect is identified.

The Walton (2006)^[52] definition of a cold case triggers pessimism and discourages law enforcement agencies to conduct cold case reviews, and retrospective detectives feel discouragement. This triggers a negative psychological framing effect on detectives' decision-making and leads to a cognitive bias. The Adcock & Stein (2013)^[3] definition is much closer, but investigative leads are never exhausted. These are detective skills, resources available, expertise, professionalism and the absence of clear and updated law, and cognitive bias and investigative negligence that make the leads exhausted.

These varying concepts, definitions and statute of limitations of cold case homicides has stronger and wider impact on detective capabilities, bereaved families, offenders, investigative outcomes, and more broadly on criminal justice system itself. As one of the research participants said.

“A wide range of alternative terms of cold case homicides and statute of limitations among different jurisdictions in policing and academic circles adversely affect investigations. For example, the blind murder term used by Punjab Police psychologically stops investigators and discourage them not to make new efforts to search for new evidence. Similarly, the terms “untraced” or “unsolved” also trigger negative psychological effect on investigator's decision making. This minimises detective efforts to solve the case due to undetectable or unsolvable nature of the case. Therefore, the globally recognised best definition of cold case homicide could possibly be those cases in which the investigators are actively working on them, but justice has not been served yet”.

To What Extent Homicides Go Cold?

The comparison of undetected homicides among selected global countries is important to search for solution with respect to their policies and procedures to investigate homicides, the most serious crime. Calculating the rate of untraced homicides in the selected global context is crucial for understanding the scope of unsolved homicides and identifying patterns that may indicate systemic issues, such as statute of limitations among jurisdiction or corruption or lack of police reforms. These rates reveal disparities in justice access, highlighting regions where victims and families lack accessibility to justice system and justice system accountability.

Globally tracking untraced homicides also aids international efforts to combat organised crimes and improve policing practices. By exposing gaps in homicide resolution, policymakers and organisations can direct resources and support to regions most in need, ultimately fostering safer, more just societies worldwide. The rate of undetected homicide is 9% in New Zealand (Liem *et al*, 2018)^[42], and

10% in England and Wales (Allsop, 2018; Innes, 2009; Brookman *et al*, 2020)^[6, 37, 19], 13% in Australia (Chan & Payne, 2013)^[22], 25% in Canada (Liem *et al*, 2018)^[42] and 35% in the USA (Liem *et al*, 2018; Roberts, 2008)^[42, 49], now 40% (Keller & Lewis, 2024)^[41]. According to the findings of this research, 56% homicides went cold from 2014-2021, including 33% homicides that were under investigation for more than one year.

According to recent estimate, there are 2,748 cold case homicide in the United Kingdom (Bennett, 2024)^[15], 242,000 in USA (Heurich & Haskins, 2019). In Punjab Pakistan, 1,721 homicides are still unsolved including 1,122 cases that are under investigation from 2014 to 2021. The total number of unsolved homicides in Australia and Canada are unknown. While there are 66 unsolved homicides in the files of New Zealand dating back to 1914 (Leask, 2019).

There are several reasons why homicides go cold. For example, the prevalence of the use of firearms in USA contributes high volume of homicides go cold (Davis *et al*, 2014)^[29]. In Punjab Pakistan, most cold case homicides belong to firearm robbery cases. In UK, the use of knife or sharp instrument is common, therefore, forensically aware offenders make the case more difficult (Ferguson, 2019)^[32]. In Australian and New Zealand, the use of firearm is also common for the occurrence of homicides while their homicide detection rate is higher compared to other jurisdictions under study. The other reasons could possibly be the inability of law enforcement agencies to establish relationship between victim and offender, insufficient time of detectives to review cold case homicides because they are busy on live investigations (Davis *et al*, 2014)^[29], and corruption.

Table 1: Rate of Cold Case Homicides in the Selected Jurisdictions

Countries	Cold Case Homicides
England and Wales	10%
United States of America	35%
Canada	25%
Australia	13%
New Zealand	9%
Punjab Pakistan	56% including 33% of those homicides that are under investigation for more than 1 year

Investigation of Cold Case Homicides

According to (Davis, Jensen & Kitchens, 2012)^[28, 28, 28], there are three types of cold case investigations. First, ‘The Classic Cold Case Investigation’, where the investigation was restarted as a result of familial or political pressure. Second, ‘Scientific Cold Case Investigation’, where cold case review was conducted as a result of developments in science and technology, such as improvements in forensic science. And third, ‘Systematic Cold Case Investigation’, where cold case review activity was started when new information became available such as a new witness came forward or an offender pleaded guilty during an interrogation of another crime while in police custody or during a police routine cold case review activity.

The developments in forensic science and its clear justifiable benefits made it possible for the British police to review not only cold case homicides properly, but also all other unsolved major crimes (Allsop, 2018)^[6]. The Byford Report on investigative failure into the serial killer “The Yorkshire

Ripper” (Peter Sutcliffe) and the investigation failure of the murder of Stephen Lawrence laid the foundation of cold case review systematically along with the commissioned report (2000) of Her Majesty Inspectorate Constabulary (HMIC). The Crime Committee (CC) of the Association of Chief Police Officers (ACPO) also suggested in 1998 that cold case review should be developed in all forces of the British police, because each police force was not routinely reviewing unsolved major crimes. The Byford Report recommended that the ACPO, now changed to National Chief’s Police Council (NCP) set out a code of practice for major crime reviews (Allsop, 2018) ^[6]. As a result, “Operation Enigma” was first launched by the crime committee of ACPO in 1996 to investigate the serial killings of women. Nearly 207 women were killed between “1986 to 1996” and the purpose of launching Operation Enigma was to investigate whether there are any links between rape and murder (Garner, 1998). After the partial success of operation Enigma, operation Lynx was launched in 1997 by West Yorkshire Police, Leicestershire Police and Nottinghamshire Police to investigate sexual offences (Allsop, 2018) ^[6]. After the success of Operation Lynx, subsequent operations were launched such as Operation Advance, Operation Moscow, Operation Phoenix, Operation Sapphire and Operation Stealth etc. Law enforcement agencies in England and Wales investigate cold case homicide when the funding is allocated by the Home Office while Police Scotland has established its cold case Unit in 2011.

The establishment of cold case units or squads has become increasingly common practice in countries like the United States, Canada, and Australia (Allsop, 2018; Walton, 2021; Innes & Clarke, 2009) ^[6, 53, 37]. These specialised units are dedicated to solving long-unsolved criminal cases, particularly homicides, missing persons, and sexual assaults. Each country has taken unique approaches to building these units, often driven by advances in forensic technology, public demand for justice, and collaboration across jurisdictions.

The establishment of cold case squads in the USA was linked to FBI interventions after the urban homicide wave during the 1980s and 1990s (Wilson, 2006). The Miami-Dade police department established its Cold Case Homicide Squad (CCHS) in 1983 (Wilson, 2021). In 1992, the FBI assigned staff to Washington Metropolitan Police (WMP) to establish a cold case squad for the first time in the USA to review unsolved homicides as a separate discipline (Wilson, 2021). Massachusetts State Police (MSP) had formed its CCHS during 1996/97 and the Boston police a few years earlier (Wilson, 2006). Since then, some of US police forces have established their own CCHS with varying policies and practices sponsored or coordinated by the federal government. Although the US is the country that recognised the ‘Cold Case’ problem for the first time during the 1990s and introduced it as a separate discipline (Innes & Clark, 2009) ^[37]. However, it is not known how many CCHSs have been established till the present time and what political struggles have been made historically to solve cold homicides in the USA.

In Canada, the rate of cold case homicides in 1966 was 5% which increased to more than 20% in 1993 (Regoeczi, Kennedy & Silverman, 2000) ^[46, 46, 46]. It is believed that substantial increases in the number of undetected homicides in Canada is because of the increasing proportion of homicide occurrences between individuals with little or no previous relationship (Silverman & Kennedy, 1987). Police forces of

Canada are using different strategic plans than the UK to unlock cold case homicide and do follow the same trajectory as the USA. For example, Toronto Police have developed a cold case unit to review more than 500 cold case homicides in the files, and about 5 to 8 cases have been solved in the last 10 years (Casey, 2016) ^[21]. While others such as Ontario’s York Regional police have assigned two full time detectives to review cold cases without forming a cold case unit (Casey, 2016) ^[21]. In British Columbia, the Royal Canadian Mounted Police’s (RCMP) Integrated Homicide Investigation Team (IHIT) has dedicated five full-time detectives to investigate unsolved homicides, but without establishing a cold case squad (Casey, 2016) ^[21]. Prior to 2016, in Vancouver and Ottawa, there were not any formal cold case units or dedicated teams to review cold case homicides regularly, and it is not known how these police forces conduct their cold case reviews (Hendry, 2019; Casey, 2016) ^[21]. There is no single cold case homicide database nationwide, however, each Canadian police force maintains its own database (Casey, 2016) ^[21]. Vancouver Police has also established its cold case unit to unlock more than 300 homicides in its files (Casey, 2016) ^[21]. Most of the research on cold case homicide investigation was conducted in the USA, where homicide characteristics largely differ from Canada (Trussler, 2010) ^[51].

There are eight independent state and territory police forces in Australia including the Australian Capital Territory Police (ACTP) responsible for investigating all serious crimes including homicides. In Australia, cold case homicides are not occurring frequently and there is no national database of unsolved homicides to count the total number of homicides historically (Claire & Amber, 2020) ^[25]. The academic literature on cold case homicide in Australia is scarce and little work is done on No-Body homicides and offenders detection avoidance behaviour (Ferguson & Pooley, 2019; Claire & Amber) ^[32, 25]. Almost every police force has established its own cold case units/squads to review historic unsolved homicides considering their own policies and procedures with some shared practices.

Currently, there are six cold case homicides within the area of Australian Capital Territory Policing (ACTP) and the cases are actively being reviewed by detectives (ACTP Website). The cold case homicide squad was established in 2010 to review all unsolved homicides. While in the area of New South Wales Police, there are about five hundred cold homicides (Palmer, 2018). The unsolved homicide squad was established in 2004, and more than 30 cold case homicides have been solved where 5 cases are at court (Palmer, 2018). The Superintendent Commander of cold case squad detective Scott Cook confirmed that the cases are being reviewed as they occur, and the first 17 cases are being reviewed by the detectives of the cold case unit present (Palmer, 2018). There is nothing in the literature to confirm how many cold case homicides there are in the files of Northern Territory Policing and whether the cold case squad has been established or not yet. Albeit 12 homicide cases were registered during 2017-18 including murders, attempted murders, traffic collisions and manslaughters, the homicide clearance rate was 91.7% (NT Police Annual Report, 2017-18) ^[9]. It is not known what happened to uncleared cases and how many total historic cold cases are still unsolved.

There are 15 cold case homicides including “No-Body” missing persons in the files of Queensland Police and the police have announced rewards for those who come forward

with the information related to any case (Agius & Ford, 2014)^[2]. The oldest cold homicide case belongs to 1952 when Betty Shanks, (22 years old student) was walking from a tram stop to her home when she was murdered. There is not any homicide case that remained unsolved after 1999 in the file of Queensland police. The cold case unit has been established in Queensland and the detectives are actively working on all unsolved murders. According to the detective senior constable 'Deborah Wilson, there is no statute of limitation for murder in Queensland, every homicide case remains open until it is solved (Queensland Government, 2019). The cold case team is meticulously reviewing the detective's case notes, witness statements, and forensic evidence to find avenues for viable leads to progress the case. Currently, there are 113 homicide cases that remained unsolved historically within the area of South Australian Police (Crime Stoppers, 2019). There is no formal cold case unit in South Australian Police Force, however, a structural process is available to review all cold case homicides when new leads become available.

Tasmania Police established its cold case homicide unit in 2008 with five dedicated officers (Bevin, 2018)^[16], and it was closed in December 2011 due to a budget cut (Hope, 2014). The cold case Unit was reinstated in 2014 within the Serious and Organised Crime Unit (SOCU). A total of 14 full-time officers were assigned to the SOCU unit to investigate all serious crimes including cold cases (Hope, 2014). It is not known how many unsolved murders are in the files of Tasmanian Police. While Victoria Police has an informal cold case unit sitting within the homicide squad responsible for investigating historic unsolved missing and unsolved murders (Moor, 2014). There are 280 cold case homicides in the files of Victoria Police dating back to 1951 (Victoria Police YouTube Channel, 2021).

The New Zealand police is a national police force responsible for the maintenance of law-and order situations, and investigation of all serious crimes including cold case homicides in the country. On 9th October 1846, an ordinance was passed for the establishment of the New Zealand Police (NZP), and it was first formed on the British colonial model under Police Act 42 1886. In New Zealand, there are 108 cold cases, mostly homicides, dating back to 1014 and New Zealand Police review each case after every twelve months (Brooks & Hira, 2022)^[20]. Between 2008 and 2019, 55 cases remained unsolved out of a total 820 registered homicides in New Zealand (Brooks & Hira, 2022)^[20]. The oldest cold case homicide belongs to 1914 when sex worker 'Frances Fanny Marshal (43-year-old) was murdered at a vacant section on Nelson Street in central Auckland (Leask, 2018). Her throat was cut, her hand and scalp were badly mutilated, and she was stabbed severely in the heart, lungs, and breast (Leask, 2018). The Next morning, a man was suspected because his face was covered in blood while looking for a job at an Auckland freezing work, but he was never found by police (Leask, 2018). Since then, the case remains unsolved.

Investigative Methods and Technology

The growth of the latest developments in scientific methods to solve not only cold case homicides but in all other major crimes has risen dramatically in recent years (Allsop, 2018)^[6]. The current mechanism of cold case homicide and associated investigative techniques means that there is now a greater and higher opportunity than ever before to detect decades-old homicides in the presence of fast-growing

scientific methods of investigation. There is no single method of cold case investigation that fully fits all types of investigations (Walton, 2006)^[52]. Law enforcement agencies around the globe use several enhanced tools and technologies depending on possible leads that unlock the case. The developments in forensic science have a stronger and greater impact on the solvability of not only homicides but also on all other major crimes (Peterson *et al*, 2010)^[45]. For example, in the past, it was not possible to trace criminals using advances in forensic science, wiretapping was not a practice of law enforcement agencies and cell site analysis was not performed with enhanced capabilities as it is now. Indeed, technology aids investigation officers to identify new lines of enquiry to progress the case for the prosecution (Custers, 2012)^[26]. It provides the tools necessary for a better understanding of criminal behaviour and protecting the community in question (Bain, 2016)^[13].

The USA, Canada and Australia are using cold case units as an investigative strategy while the UK and New Zealand utilise traditional methods of periodic reviews to solve cold case homicides. In the UK, only Police Scotland has established a cold case unit to investigate historic untraced homicides. Although, scientific developments are equally important for all law enforcement agencies, however, US place more weightage on witness testimony and THE UK is more reliant on forensic science and DNA profiling (Innes & Clarke, 2009)^[37].

Research Method and Methodology

In this research, a qualitative research method was used to explore the investigative practices, challenges, and cultural dimensions of handling cold case homicides. This approach was chosen for its ability to capture rich, detailed, and contextually grounded insights from diverse data sources and participants. By integrating multiple methodologies, the study aimed to provide a comprehensive understanding of investigative processes and cross-jurisdictional practices in law enforcement agencies.

One of the key components of this research was open-ended semi-structured interviews conducted with 26 serving police officers at the rank of Deputy Superintendents of Police and head of cold case unit from Pakistan and the UK. This method allowed for an in-depth exploration of the officers' experiences, perspectives, and the challenges they encountered in their work. The semi-structured format provided flexibility, enabling participants to share detailed accounts while ensuring that the discussion remained focused on key research themes. These interviews served as a primary source of qualitative data, offering valuable insights into the investigative practices of two distinct policing systems.

Another important method utilised was the case file review of 25 cold case homicide files in Punjab, Pakistan. This analysis of official documents provided an empirical foundation for understanding investigative procedures, evidence management, and decision-making processes. It also highlighted procedural gaps and systemic challenges faced by investigators in handling unresolved cases. This document-based approach complemented the interviews by adding a layer of practical, real-world data to the study.

To gain a deeper understanding of the organisational culture and operational dynamics within law enforcement agencies, the study included six months of ethnographic observations while working with Punjab Police. By immersing in the daily routines and activities of police officers, this method captured

the nuances of their work environment, behaviours, and interactions. Ethnographic observations offered a contextualized view of the challenges and constraints that officers face, which might not always be evident in interviews or case files.

Additionally, freedom of information requests was sent to several law enforcement agencies in Canada, the USA, Australia, and New Zealand. Four law enforcement agencies, one from each, responded positively with their detailed answers. Responses from these agencies provided critical insights into international practices, policies, and innovative approaches to cold case investigations. This comparative perspective enriched the study, allowing for the identification of best practices and potential areas for improvement in other jurisdictions.

Together, these methodologies created a robust framework for exploring the complexities of cold case investigations. The qualitative approach enabled the study to delve deeply into the experiences of police officers and to examine investigative practices through multiple lenses, making the findings both comprehensive and insightful.

Cultural Attitudes and Family Involvement

The investigation of cold homicides is deeply influenced by cultural attitudes and family involvement, which vary significantly across countries like the United Kingdom (UK), United States (USA), Canada, Pakistan, Australia, and New Zealand (Davis, Jensen & Kitchens, 2012) ^[28, 28, 28]. These differences arise from societal values, the level of trust in law enforcement, and the resources available to support investigations (Alzheimer, 2012) ^[8]. Families often play critical roles, whether as advocates, partners in justice, or independent pursuers of the truth, influenced by the cultural and legal norms of their respective countries (Jacobs *et al*, 2015) ^[38].

In the United Kingdom, cold case homicide investigations are conducted by structured law enforcement mechanisms when the funding is allocated by the Home Office, often employing periodic reviews (Innes & Clarke, 2009; Allsop, 2018, Bennett, 2024) ^[37, 6, 15]. Public trust in police investigations has declined in recent years (Bradford & Jackson, 2024) ^[17], and there is increasing pressure for transparency and better communication with victims' families (Allsop, 2018) ^[6].

As research participant stated: "Families in the UK often contribute to investigations by providing emotional and logistical support, engaging with media campaigns, and maintaining public interest in their cases. The British cultural emphasis on procedural justice sees families as informants and campaigners, although their direct involvement in police processes is limited. Notably, families from marginalized communities sometimes struggle with systemic barriers, which can lead to public campaigns to ensure that their loved ones' cases receive attention".

In the USA, cultural attitudes towards cold case investigations are shaped by a strong ethos of individual advocacy and grassroots activism. Families often take active roles in reigniting interest in cases, collaborating with investigators, and using social media platforms to garner public support. Organizations like the Cold Case Foundation provide support for families, reflecting a societal value of self-reliance in seeking justice. However, systemic issues, such as racial and economic disparities, influence the prioritization of cases. Families from underserved communities frequently face additional hurdles, leading to

alliances with civil rights organizations to amplify their voices. The prominent use of forensic technology and federal programs underscores the USA's emphasis on technical solutions to solve cold cases, with family involvement often complementing these efforts.

Canada shares similarities with the USA in its approach to cold case investigations but places greater emphasis on community engagement and reconciliation. Family involvement is especially pronounced in cases involving Indigenous victims, such as those highlighted in the ongoing National Inquiry into Missing and Murdered Indigenous Women and Girls (MMIWG) (Jacobs *et al*, 2015) ^[38]. Indigenous families have been central in advocating for justice, often bringing attention to systemic neglect and biases (Fox *et al*, 2020) ^[33]. Canada's multicultural society sees diverse approaches to family involvement, with immigrant families and communities incorporating cultural practices such as vigils and collective mourning into their advocacy efforts (Jacobs *et al*, 2015) ^[38]. Law enforcement agencies are increasingly recognizing the need to engage sensitively with families, balancing forensic advancements with emotional and cultural support (Davis *et al*, 2014) ^[29].

In Pakistan, particularly in the Punjab region, cultural attitudes toward cold case investigations are heavily influenced by traditional values, societal hierarchies, and a lack of trust in the formal justice system (Abbas & Khan, 2024) ^[1]; (Rehman *et al*, 2021) ^[47]. Families are often at the forefront of pursuing justice, driven by the cultural importance of honour and reputation. This is especially true in cases involving women, where societal pressures may either motivate or deter families from seeking resolutions. With limited state resources and an underdeveloped forensic infrastructure, families frequently resort to private investigators in the tribal areas, public protests, or leveraging community and tribal councils to press for action. The reliance on traditional dispute resolution mechanisms, like jirgas, reflects a tension between modern legal processes and traditional practices in Punjab (Abbas & Khan, 2024) ^[1].

In Australia, cultural attitudes toward cold case investigations emphasize legal transparency and technological innovation (Chan & Payne, 2013) ^[22]; (Claire & Amber, 2020) ^[25]. Families are encouraged to play supportive roles, often collaborating with formal bodies like the Australian Federal Police's National Missing Persons Coordination Centre (Casey, 2016) ^[21]. Public campaigns, such as National Missing Persons Week, provide a platform for families to share their stories and keep cold cases in the public eye (Akoorie, 2024) ^[4]. However, systemic challenges persist, particularly for Indigenous Australians, whose cases often receive less priority due to entrenched biases (Ferguson & Pooley, 2019) ^[32]. Families from these communities have taken proactive roles in advocacy, drawing on cultural values of resilience and collective responsibility to push for justice. The increasing recognition of these disparities has led to efforts to address systemic inequities and improve trust between Indigenous families and law enforcement (Bradford & Jackson, 2024) ^[17].

New Zealand's bicultural framework, influenced by both Māori and European traditions, shapes its approach to cold case homicide investigations (Brooks & Hira, 2022) ^[20]; (Akoorie, 2024) ^[4]. Māori families, in particular, play a central role in seeking justice, often using cultural practices like hui (gatherings) to address unresolved cases and advocate for systemic change (Brooks & Hira, 2022) ^[20]. The

Māori principle of *whanaungatanga* (kinship) emphasizes collective responsibility, making family involvement a cornerstone of advocacy efforts (Brooks & Hira, 2022) ^[20]. The government has sought to build trust with Māori communities through initiatives like Police Iwi Liaison Officers, who facilitate communication and collaboration (Akoorie, 2024) ^[4]. Cold cases are often revisited as part of broader efforts to address historical injustices, with families serving as both advocates and partners in the investigative process (Innes & Clarke, 2009) ^[37].

Across these countries, common themes emerge in the cultural attitudes and family involvement in cold case homicide investigations (Jacobs *et al.*, 2015) ^[38]; (Fox *et al.*, 2020) ^[33]. Families universally serve as advocates for justice, whether through formal collaboration with authorities or independent activism (Davis *et al.*, 2014) ^[29]. The use of forensic advancements and public campaigns underscores the importance of technology and media in solving cold cases (Allsop, 2018) ^[6]. However, disparities in case prioritization due to systemic biases remain a challenge, particularly for marginalized communities (Nurthen & van der Laan, 2022) ^[44]. Cultural values and societal norms profoundly shape the role of families, influencing how they engage with law enforcement and advocate for their loved ones (Bradford & Jackson, 2024) ^[17]. While the approaches vary, the shared goal of achieving justice highlights the universal human drive to seek closure and accountability (Walton, 2021) ^[53].

Resource Disparities and Political Factors

Cold case homicide investigations face significant challenges influenced by resource disparities and political considerations (Innes & Clarke, 2009; Allsop, 2018) ^[37, 6]. The effectiveness of these investigations varies widely across countries due to differences in economic capacity, political will, public priorities, and systemic inequities. Examining the resource allocation and political dynamics in the UK, USA, Canada, Pakistan, Australia, and New Zealand reveals both shared and distinct obstacles and approaches to addressing unsolved homicides. Wealthier nations like the UK, USA, Canada, Australia, and New Zealand generally benefit from better funding and technological resources, but disparities within these countries remain problematic, particularly for marginalized populations. In contrast, Pakistan faces systemic challenges, including underfunding, corruption, and political interference, which severely limit the effectiveness of cold case investigations.

“Political will plays a crucial role in determining whether cold cases receive sustained attention and resources. Media coverage, public pressure, and advocacy from marginalised communities can drive political leaders to act, but systemic inequities and inconsistent funding often hinder meaningful progress”. (Research Participant).

Addressing these disparities requires not only financial investment but also political commitment to ensuring equitable access to justice for all victims and their families.

In the UK, resource allocation for cold case investigations often reflects broader policing priorities, which are influenced by the will of law enforcement agencies and government policy (Allsop, 2013) ^[5]. Specialised units dedicated to reviewing cold cases exist within few police forces, but funding for these units is inconsistent. High-profile cases or those involving vulnerable populations may attract significant attention and resources, while others risk being deprioritised. Political factors also play a role, as

government policy shapes police budgets and initiatives. For instance, the UK government has periodically introduced measures to improve investigative capacities, such as funding advancements in forensic technologies like DNA analysis (Innes & Clarke, 2009; Allsop, 2013; Allsop, 2018) ^[37, 5, 6]. However, austerity measures in recent years have strained police resources, potentially limiting the ability to pursue complex cold cases effectively.

In the USA, resource disparities are particularly pronounced due to the decentralised nature of the legal and policing systems (Keel, Jarvis & Muirhead, 2009) ^[40].

“Wealthier states and urban police departments often have well-funded cold case units equipped with advanced forensic tools and specialised personnel. In contrast, rural or less affluent jurisdictions may lack the resources to actively pursue cold cases”. (Research Participant)

Federal programs, such as those administered by the Department of Justice, provide grants to support DNA testing and other investigative efforts (Davis, 2012) ^[28], but these funds are often insufficient to address the sheer volume of unsolved homicides (Walton, 2021) ^[53]. Political factors also heavily influence cold case investigations. Public pressure and media coverage can drive political leaders to prioritise high-profile cases (Bennett, 2020) ^[14], while systemic inequities mean cases involving marginalised communities, particularly African Americans and Indigenous populations, are less likely to receive sustained attention.

“In Canada, resource allocation for cold case investigations varies significantly between provinces and territories. Larger urban areas, such as Toronto and Vancouver, have specialised units and access to advanced forensic technologies, while rural regions may struggle with limited personnel and funding. Political factors have recently gained prominence, particularly concerning cases involving Indigenous women and girls”. (Research Participant).

The ongoing crisis of cold case missing and murdered cases has led to heightened political and public scrutiny, prompting the establishment of task forces and inquiries (Arntfield, 2022) ^[11]. However, critics argue that systemic underfunding and bureaucratic inefficiencies continue to impede progress. The political landscape in Canada, shaped by reconciliation efforts and increasing demands for justice from Indigenous communities, has created both opportunities and challenges for addressing cold cases.

In Punjab, Pakistan, cold case homicide investigations face significant resource and political challenges. Police force often lack the financial and technological resources needed to pursue complex investigations, and cold cases are frequently overshadowed by more immediate concerns, such as terrorism or political violence. The justice system itself faces systemic inefficiencies, including case backlogs and corruption (Rehman, Usmani & Parveen, 2021) ^[47], which hinder progress in solving cold case homicides.

“Political factors also play a significant role; cases involving influential individuals or politically sensitive cases may be pursued more vigorously, while others, particularly those involving marginalised communities, are often ignored”. (Research Participant).

Public trust in law enforcement is generally low (Abbas & Khan, 2024) ^[1], further complicating efforts to address unsolved homicides. The lack of standardized protocols for reopening cold cases adds to the systemic hurdles, leaving many families without closure.

“Australia’s approach to cold case investigations reflects the

disparities between states and territories. While major urban centres like Sydney and Melbourne benefit from well-resourced police forces with dedicated cold case units, remote and rural areas often face significant resource limitations". (Research Participant).

The use of rewards for information, public appeals, and advancements in forensic science has proven effective in some high-profile cases, but systemic underfunding of police services remains a challenge (Ferguson & Pooley, 2019) ^[32]. Political factors influence resource allocation, with media coverage and public interest often driving prioritization. Cases involving Indigenous Australians have drawn particular scrutiny, as systemic inequities and historical injustices have led to disproportionately high rates of unsolved homicides in Indigenous communities. Political efforts to address these disparities have been inconsistent, with calls for more comprehensive reforms frequently falling short.

In New Zealand, resource disparities for cold case investigations are less pronounced than in some other countries due to the nation's relatively small size and centralised policing structure. The New Zealand Police maintain a dedicated cold case unit that benefits from consistent government support, but resource constraints still exist, particularly for older cases requiring significant forensic work (Brooks & Hira, 2022) ^[20]. Political factors are evident in the prioritisation of cases involving public safety concerns or vulnerable populations. Efforts to address cold cases involving Māori victims have gained attention in recent years, driven by broader political commitments to equity and reconciliation. However, as in other countries, systemic biases and historical injustices continue to impact resource distribution and investigative priorities.

Legal Frameworks and Statute of Limitations

There is no statute of limitation in any selected jurisdiction and there is no federal or provincial law that directly governs the investigation of unsolved homicides in the selected jurisdictions. The absence of a statute of limitations for murder across these jurisdictions underscores the universal recognition of homicide as a crime of exceptional gravity. While legal frameworks differ in procedural nuances, they share a commitment to leveraging advancements in forensic science and investigative techniques to solve cold cases (Allsop, 2018) ^[6]. Public engagement, such as appeals and rewards, plays a significant role in all five countries, reflecting the societal imperative to seek justice for victims and their families (Agius & Ford, 2014) ^[2]. Challenges remain, including balancing the rights of the accused with the pursuit of justice, addressing systemic biases, and ensuring resource allocation for historical cases.

In the UK, investigations into murder including cold case homicides are governed by general principles of criminal law and procedure such as Murder Investigation Manual (Roach, 2017) ^[48]. The Crown Prosecution Service (CPS) and police forces collaborate to reopen unsolved cases when new evidence emerges, such as advancements in DNA technology or new witness testimonies (Allsop & Pike, 2019) ^[7]. Legislative tools like the Criminal Justice Act 2003 allow for retrials in exceptional circumstances, particularly when fresh and compelling evidence is uncovered, even if a prior acquittal occurred (Association of Chief Police Officers, 2009) ^[12]. This framework emphasises justice for victims while maintaining procedural fairness for suspects.

The United States has a diverse legal system with statutes of limitations varying by state and federal jurisdiction. However, for homicide, there is no statute of limitations in any state or at the federal level. This principle aligns with the severity of the crime and the enduring societal interest in holding offenders accountable. Cold case investigations benefit from specialised cold case units within police departments (Walton, 2021) ^[53], many of which utilise advanced forensic techniques like DNA profiling (Davis, 2012) ^[28]. The legal framework is bolstered by the Justice for All Act (2004), which supports DNA testing and the retention of biological evidence, ensuring cold cases remain prosecutable. High-profile cold cases, such as the resolution of decades-old murders using familial DNA, exemplify the robustness of the U.S. approach to these crimes (Peterson *et al*, 2010) ^[45].

Similar to the UK and USA, Canada has no statute of limitations for homicide. The Canadian legal framework places a strong emphasis on the preservation of evidence and the rights of the accused (Arntfield, 2022) ^[11], as mandated by the Canadian Charter of Rights and Freedoms (CCRF) (Rennie & Rothschild, 2009) [Note: Not in your reference list, so left as placeholder]. Cold case investigations are typically handled by specialised cold case units (Arntfield, 2016; 2022) ^[10, 11], and public appeals often play a significant role in generating leads. There is no single cold case homicide database nationwide, however, each Canadian police force maintains its own database (Casey, 2016) ^[21]. After mid-1990s, an institutional initiative was taken by the Canadian Police to create a National DNA database to assist police investigations. In response, the government passed legislation in December 1998 and later from June 2000 onwards, reporting and using the National DNA database has become common practice for Canadian law enforcement agencies (Northern Territory Police, Fire & Emergency Services, 2018) ^[9]. The framework ensures that these cases remain active and prioritised, leveraging both technological advancements and community engagement to seek justice.

"In Australia, murder cases are not subject to any statute of limitations, ensuring they can be prosecuted at any time. The legal framework is grounded in both federal and state laws, with significant procedural variations between jurisdictions". (Research Participant).

Cold case units in police forces focus on unresolved homicides, employing tools such as the Crimes Act 1958 in Victoria and equivalent statutes in other states to facilitate investigations (Nurthen & van der Laan, 2022) ^[44]. In some states, reforms have enabled retrials for acquitted suspects if new evidence emerges, aligning with broader international practices. Public awareness campaigns and rewards for information also play a pivotal role in solving cold cases (Agius & Ford, 2014) ^[2]. Advances in forensic science, particularly in DNA testing, have been instrumental in reviving and resolving cold cases across the country (Innes & Clarke, 2009; Wellman, 2016; Walton, 2021; Nurthen & van der Laan, 2022) ^[37, 54, 53, 44].

In New Zealand, murder has no statute of limitations, consistent with the global approach to homicide cases. Cold case investigations are governed by the Crimes Act 1961, which establishes the legal framework for prosecuting serious offenses (Briggs, 2015) ^[18]. The New Zealand Police maintain a dedicated cold case unit tasked with reviewing unresolved cases, often leveraging advances in technology and data analytics (Brooks & Hira, 2022) ^[20]. During the past

twenty years, New Zealand police has 31 cold case homicides in record and they never closed these cases until solved (Akoorie, 2024) ^[4]. The framework also emphasises the importance of victim support, with initiatives designed to keep families informed and involved throughout the investigative process.

In Punjab Pakistan, cold case homicides are investigated under section 173 of Code of Criminal Procedure 1898 (CrPC 1898). There is no legal time frame for when police close the case or submit a final report by using Form 25.57(2) under section 173 of code of criminal procedure (CrPC) (Hussain *et al*, 2021) [Note: Not in your reference list, so left as placeholder]. This varies from one month to one year depending on caseload, nature and status of the case, the financial position of the deceased's family, media coverage, political pressure, geographic location, and receiving of forensic results from Punjab Forensic Science Lab (PFSL) (Hussain *et al*, 2021) [Note: Not in your reference list, so left as placeholder]. In practice, high profile cases such as political assassination remain open for quite a long time. Also, untraced homicides that catch media attention tend to be solved quickly, otherwise they remain open for quite a long time. The untraced murders committed in rural areas are comparatively difficult to solve due to the absence of surveillance technology and these cases remain open for longer than usual. As communicated with informants, Punjab Forensic Science Lab responds quickly for high profile cases but takes three to six months for normal cases.

Media and Public Interest

Although, all homicides receive media coverage in all jurisdictions, electronic and print, preferably in local newspapers or local televised news (Innes, 2003; Greer, 2003; Bennett, 2020) ^[36, 35, 14]. However, there are other newsworthy demographic and circumstantial factors such as gender, economic condition of deceased, political status and affiliation, level of education, geographic location, employment status and religious belief i.e. that determine what level of media coverage could be given (Innes, 2003; Jewkes, 2015; Bennett, 2020) ^[36, 39, 14]. During the last decade, media has increased attention on cold case homicide investigation (Woods, 2011) ^[55].

In this section of article, our goal is to determine to what extent cold case homicides receive more public attention that urge law enforcement agencies to reopen the case for review in the selected global jurisdictions. In the absence of scarce academic literature on media engagement, it is difficult to determine how often law enforcement agencies open the case as a result of media enquiry. In developed world such as the UK, USA, Canada, Australia and New Zealand, the media is much active compared to Pakistan.

According to an estimate (Snively, 2017) ^[50], eight out of ten law enforcement professionals use social media networks as a source for criminal investigations. The proliferation of social media platforms puts pressure on law enforcement agencies to respond to the media for updates on the cases under investigations (Mawby, 1999) ^[43]. The police works like gatekeeper to share information with the media (Chibnall, 1977; Ericson *et al*, 1989; Bennett, 2020) ^[23, 30, 14], and they decide what information is to share or withhold due to demographics of the victims and integrity of police investigation (Ericson *et al*, 1989) ^[30].

Although, it is not known how social media networks can possibly help to solve cold and old crimes, especially cold

case homicides, however, they have the potential to aid cold case homicide investigations. Greater Manchester Police routinely use Twitter to report every single case in their control room for public requests to come forward if they have any information about the case under investigation (Crump, 2011) ^[27]. The law enforcement agency can request social media platforms to access account details of the deceased, location history and communicational data.

For example, law enforcement agencies in USA and Canada routinely send search warrants to Facebook for deceased's account credentials, and Facebook policy also allows emergency requests to be processed more quickly outside of their legal power for homicide and other serious crimes (Fassler, 2020) ^[31]. Facebook Law Enforcement Response Team (FLERT) usually process such types of requests routinely. Law enforcement agencies of the UK, USA, Canada, Australia and New Zealand, routinely use electronic and print media as a source to cold case homicide investigations including social media, but this is not the practice of Punjab Police in Pakistan. The announcement of life changing rewards by law enforcement agencies is another vital source which is less common in the UK, USA and Canada. But Australia and Zealand police routinely announce life changing rewards for a limited time to unlock cold case homicides (Chisholm, 2018) ^[24].

Conclusion

The controversial term "cold case homicide" is complex and difficult to define and there is no universal accepted definition for this global issue. There is no centralised system to record cold case homicides nationwide in any selected jurisdiction. In the UK, the cold case homicides are reported to the Home Office nationwide but from only England and Wales. The USA, Canada and Australia use cold case units as an investigative strategy while the UK and New Zealand utilise traditional methods of periodic reviews to solve cold case homicides. In the UK, only Police Scotland has established a cold case unit permanently to investigate historic untraced homicides.

The media is equally active in all five jurisdictions and being used as an investigative strategy and there is no centralised system of accountability within any law enforcement agency to account for those detectives who are involved in corrupt practices while investigating cold case homicides. The advances in DNA profiling and other forensic developments are being used in all selected countries. However, the USA place more weight on new witness testimony and less rely on scientific developments, while the UK, prefer scientific developments to secure a conviction (Allsop, 2018).

Although, there are some examples of individualised coordination between law enforcement agencies and academic research community (Fox *et al*, 2020; Holt *et al*, 2022). However, there is no national collaboration and coordination programme nor any centre to share success stories nationwide to assist cold case investigations. The funding and resources allocations are on individual basis 44 and there is nothing to support law enforcement agencies in terms of funding and resource allocation at national level in any selected country. International coordination and collaboration to support ongoing cold case homicides investigations is still non-existent. There is no statute of limitation in any country and each law enforcement agency investigates cold case homicides through its own policy, procedures and regulations.

References

1. Abbas Z, Khan PA. The nexus of Punjab Police and public trust: A study of Punjab Police in Pakistan. *Pak J Law Anal Wisd.* 2024;2(1):385–397.
2. Agius K, Ford E. Queensland cold cases: Looking back at some of the state's most baffling cases. *ABC News.* 2014 Nov 19.
3. Adcock JM, Stein SL. Cold case models for evaluating unsolved homicides. *Investig Sci J.* 2013;5(2):1–10.
4. Akoorie N. Cold case murders: How police work on unresolved homicides to bring families closure. *New Zealand Herald.* 2024.
5. Allsop C. Motivations, money and modern policing: Accounting for cold case reviews in an age of austerity. *Policing Soc.* 2013;23(3):362–375.
6. Allsop C. Developments in DNA profiling techniques and technologies: Cold case review. In: *DNA, detective work and unsolved major crimes.* 2018.
7. Allsop C, Pike S. Investigating homicide: Back to the future. *J Criminol Res Policy Pract.* 2019;5(3):229–239.
8. Altheimer I. Cultural processes and homicide across nations. *Int J Offender Ther Comp Criminol.* 2012;57(7):842–863.
9. Northern Territory Police, Fire & Emergency Services. *Annual report 2017–18.* 2018.
10. Arntfield M, Mains K. Cold case homicides: Challenges and opportunities. In: Swart J, Mellor L, editors. *Homicide: A forensic psychology casebook.* New York: Taylor & Francis; 2016. p. 299–314.
11. Arntfield M. *How to solve a cold case: And everything else you wanted to know about catching killers.* Toronto: Collins Publisher Ltd; 2022.
12. Association of Chief Police Officers. *Review of undetected historic serious crime: Why bother?* *J Homicide Major Incident Investig.* 2009;5(2):1–16.
13. Bain A. *Law enforcement and technology: Understanding the use of technology for policing.* Palgrave Macmillan; 2016.
14. Bennett K. The media as an investigative source: Reflections from the English cold case units. *J Crim Psychol.* 2020;10(2):145–166.
15. Bennett K. Exploring unsolved homicides in Great Britain through the FOIA: Implications for practitioner approaches to investigations. In: *The crime data handbook.* Bristol: Bristol University Press; 2024.
16. Bevin E. Retired detective to consult on unsolved Tasmanian crimes in new bid to crack cold cases. *ABC News.* 2018.
17. Bradford B, Jackson J. Trust in the police: What is to be done? *Political Q.* 2024;95:442–449.
18. Briggs M. The conduct requirement in the law of attempt: A New Zealand perspective. *Common Law World Rev.* 2015;44(2):145–167.
19. Brookman F, Jones H, Williams R, Fraser J. Dead reckoning: Unravelling how homicide cases travel from crime scene to court. *Homicide Stud.* 2020;24(3):283–306.
20. Brooks N, Hira S. Operational psychology and cold case investigations in New Zealand. *Forensic Sci Int Synerg.* 2022;5:1–10.
21. Casey L. Cold case units across Canada pore over unsolved crimes. *Durham Region News.* 2016.
22. Chan A, Payne J. *Homicide in Australia: 2008–09 to 2009–10.* Canberra: Australian Institute of Criminology; 2013.
23. Chibnall S. *Law-and-order news: An analysis of crime reporting in the British press.* London: Tavistock; 1977.
24. Chisholm D. Fresh \$50k reward offered in suspected cold case murder. *Noted.* 2018.
25. Claire F, Amber M. Detection avoidance and misclassified unsolved homicides in Australia. *J Criminol Psychol.* 2020;10(2):113–122.
26. Custers B. Technology in policing: Experiences, obstacles, and police needs. *Comput Law Secur Rev.* 2012;28(1):62–68.
27. Crump J. What are the police doing on Twitter? Social media, the police and the public. *Policy Internet.* 2011;3(4).
28. Davis RC, Jensen CJ, Kitchens KE. Cold case investigation: Analysis of current practices and factors associated with successful outcomes. *NIJ;* 2012.
29. Davis RC, Jensen CJ, Burgette L, Burnett K. Working smarter on cold cases. *J Forensic Sci.* 2014;59(2):375–382.
30. Ericson R, Baranek P, Chan J. *Negotiating control: A study of news sources.* Toronto: University of Toronto Press; 1989.
31. Fassler E. Here's how easy it is for cops to get your Facebook data. *OneZero.* 2020.
32. Ferguson C, Pooley K. Comparing solved and unsolved nobody homicides in Australia. *Homicide Stud.* 2019;23(4):381–403.
33. Fox B, Miley LN, Allen S, *et al.* Law enforcement and academics working together on cold cases. *J Crim Psychol.* 2020;10(2):93–111.
34. Gaylor D. *Getting away with murder: The reinvestigation of historic unsolved murder.* 2002.
35. Greer C. *Sex crime and the media.* Oxon: Routledge; 2003.
36. Innes M. *Investigating murder: Detective work and police response.* Oxford: Oxford University Press; 2003.
37. Innes M, Clarke A. Policing the past: Cold case studies. *Br J Sociol.* 2009;60(3):543–563.
38. Jacobs KA, Wellman A, Fuller AM, *et al.* Familial impact of cold case homicides. *J Fam Stud.* 2015;22(3):1–16.
39. Jewkes Y. *Media and crime.* 3rd ed. London: Sage; 2015.
40. Keel TG, Jarvis JP, Muirhead YE. Factors affecting homicide investigations. *Homicide Stud.* 2009;13(1):50–68.
41. Keller A, Lewis M. Cold case reviews: College students as force multipliers. *Policing.* 2024;47(5):801–816.
42. Liem M, Suonpaa K, Lehti M. Homicide clearance in Western Europe. *Eur J Criminol.* 2018;16(1):81–101.
43. Mawby R. Visibility, transparency and police media relations. *Policing Soc.* 1999;9(3):263–286.
44. Nurthen K, van der Laan L. Cold case homicide prioritisation. *Policing.* 2022;45(5):741–756.
45. Peterson J, Sommers I, Baskin D, Johnson D. *Role of forensic evidence in criminal justice.* US Department of Justice; 2010.
46. Regoeczi WC, Kennedy LW, Silverman RA. Uncleared homicides: Canada/US comparison. *Homicide Stud.* 2000;4(2):135–161.
47. Rehman T, Usmani MA, Parveen S. Criminal justice system in Pakistan. *Pak J Int Aff.* 2021;4(3):740–756.
48. Roach J. The retrospective detective: Cognitive bias. *Br Criminol Conf.* 2017;17:1–19.

49. Roberts A. Explaining differences in homicide clearance rates. *Homicide Stud.* 2008;12:136–145.
50. Snively DT. Effective social media use by law enforcement agencies. 2017.
51. Trussler T. Changing nature of homicide clearance in Canada. *Int Crim Justice Rev.* 2010;20(4):266–383.
52. Walton RH. Cold case homicides: Practical investigative techniques. New York; 2006.
53. Walton R. Cold case homicides: Practical investigative techniques. 2nd ed. Washington DC; 2021.
54. Wellman A. Factors impacting prioritisation of cold cases. *J Cold Case Rev.* 2016;2(2):11–22.
55. Woods DD. Cold case investigation. *Law Enforc Exec Forum.* 2011;11(2):23–32.

How to Cite This Article

Aslam M, Kaunert C, Barker J, Dodsworth F. The Global Perspective on Cold Case Homicides: A Qualitative Assessment of Policing Policies, Procedures and Practices. *Int J Judicial Law.* 2026;5(2):96-105. doi:10.54660/IJL.2026.5.2.96-105.

Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.