

TRENDS IN THE STUDY OF DERADICALIZATION: A BIBLIOMETRIC ANALYSIS

U.N. Kalyakbar, K.M. Bishmanov

ABSTRACT

The rising threat of violent extremism and growing global instability have led to increased interest in deradicalization in recent years. There has been an expansion of research on this topic, featuring various approaches and studies from different fields. This highlights the need to systemize knowledge on deradicalization. The study aimed to identify key trends in deradicalization research through a bibliometric analysis over the past few decades. The database is based on Scopus articles, and the methodology includes bibliometric analysis using a keyword search query. The selection of articles followed the PRISMA guidelines. During the research, VOSviewer and R Studio were used for analysis and visualization, which revealed thematic clusters and institutional research centers. The findings indicated that deradicalization was not a highly relevant topic for many years until 2015, when it became non-cyclical. Publication activity began to rise in 2015 and continues to grow, becoming more institutionalized. The analysis of the most cited articles identified three main areas: psychological models of radicalization and deradicalization, empirical studies of exit and reintegration programs, and challenges related to the digital environment and evolving political strategies. Further, the thematic analysis showed that three key concepts remain stable: "radicalization", "deradicalization", and "terrorism". Supporting terms focus on several areas, including gender studies, legal aspects, and online radicalization. The results highlight the interdisciplinary nature of deradicalization and suggest opportunities for further research in comparative, gender, and digital studies.

Keywords: Deradicalization, Radicalization, Violent Extremism, Bibliometric Analysis, Counterterrorism, Reintegration Programs.

al-Farabi Kazakh National University, Almaty, Kazakhstan

Corresponding author:

U.N.Kalyakbar,
umka_993@mail.ru

Citation:

Kalyakbar U.N., Bishmanov K.M.
Trends in the Study of
Deradicalization: a Bibliographic
Analysis // Adam Alemi. – 2026.
– Vol. 28. – No. 2 (108). – P. 301–312.
– DOI: 10.48010/hwet8h77

Open Access

© The Author(s), 2026
This is an open-access article
distributed under the terms of the
Creative Commons Attribution 4.0
International License (CC BY 4.0).
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Received: 18/02/2026

Accepted: 12/04/2026

Published online: 30/06/2026

Дерадикализацияны зерттеу үрдістері: библиографиялық талдау

Аңдатпа. Зорлық-зомбылық экстремизмі қаупінің өсуі және жаһандық тұрақсыздықтың күшеюі соңғы жылдары дерадикализация тақырыбына қызығушылықтың артуына әкелді. Дерадикализация туралы білімді жүйелеудің өзектілігін анықтайтын әртүрлі тәсілдермен және пәнаралық зерттеулермен осы тақырып бойынша зерттеулердің кеңеюін байқауға болады. Зерттеудің мақсаты соңғы онжылдықтардағы библиографиялық талдау негізінде дерадикализацияны зерттеудің негізгі тенденцияларын анықтау болды. Дерекқор Scopus мақалаларына негізделген және әдістемелік негіз библиометриялық талдау болып табылады, соның ішінде кілт сөз бойынша іздеу терминін пайдалану. Мақаланы таңдау әдістемесі PRISMA стандарттары бойынша жүргізілді, сонымен қатар зерттеу барысында тақырыптық талдауды құру үшін vosviewer және R Studio талдау және визуализация бағдарламалары қолданылды, бұл тақырыптық кластерлер мен институционалдық зерттеу орталықтарын көрсетті. Зерттеу нәтижелері дерадикализация тақырыбы 2015 жылға дейін көптеген жылдар бойы жоғары өзектілікке ие болмағанын көрсетті, яғни циклдік емес сипатта болды. Жарияланым белсенділігінің өсуі 2015 жылдан басталды және бүгінгі күнге дейін серпінді және институционалдық сипатқа ие. Ең белсенді келтірілген мақалалардың нәтижесі бізге үш негізгі бағытты, атап айтқанда радикалдану мен дерадикализацияның психологиялық модельдерін, шығу және реинтеграция бағдарламаларын эмпирикалық зерттеуді, сондай-ақ цифрлық орта мен саяси стратегиялардың өзгеруіне байланысты сын-қатерлерді анықтауға мүмкіндік берді. Әрі қарай, тақырыптық талдаудың нәтижелеріне сәйкес, «радикализация», «дерадикализация», «терроризм» сияқты үш негізгі тұжырымдама тұрақты. Көмекші терминдер гендерлік зерттеулер, құқықтық аспектілер және интернеттегі радикалдану сияқты бірнеше бағытта шоғырланған. Нәтижелер дерадикализацияның пәнаралық сипатын көрсетеді және одан әрі салыстырмалы, гендерлік және цифрлық зерттеулердің перспективаларын көрсетеді.

Түйін сөздер: дерадикализация, радикализация, зорлықшыл экстремизм, библиометриялық талдау, терроризмге қарсы іс-шаралар, қайта әлеуметтендіру бағдарламалары.

Тенденции изучения дерадикализации: библиографический анализ

Аннотация. Рост угрозы насильственного экстремизма и усилением глобальной нестабильности привела к тому, что в последние годы наблюдается рост интереса к теме дерадикализации. Можно наблюдать расширение исследований по данной тематике с разными подходами и междисциплинарными исследованиями, что определяет актуальность систематизации знаний о дерадикализации. Целью исследования было выявление ключевых тенденций изучения дерадикализации на основе библиографического анализа за последние десятилетия. База данных основана на статьях Scopus, а методологической основой является библиометрический анализ, включая использование поискового запроса по ключевым словам. Методология отбора статей проводилась по стандартам PRISMA, а также в ходе исследования для построения тематического анализа были использованы программы анализа и визуализации VOSviewer и R Studio, что показала тематические кластеры и институциональные центры исследований. Результаты исследования показали, что тема дерадикализации не имела высокую актуальность на протяжении долгих лет вплоть до 2015 года, то есть имел нециклический характер. Рост публикационной активности начался с 2015 года и по сей день остается динамичным и уже имеет институциональный характер. Результат самых активно цитируемых статей позволил нам выявить три основных направления, а именно психологические модели радикализации и дерадикализации, эмпирические исследования программ выхода и реинтеграции, а также вызовы, связанные с цифровой средой и трансформацией политических стратегий. Далее согласно полученным выводам тематического анализа, устойчивы три основных концепты как «radicalization», «de-radicalization», «terrorism». Вспомогательные термины сконцентрированы по нескольким направлениям как гендерные исследования, правовые аспекты и онлайн-радикализация. Полученные результаты указывают на междисциплинарный характер дерадикализации и демонстрируют перспективы для дальнейших сравнительных, гендерных и цифровых исследований.

Ключевые слова: дерадикализация, радикализация, насильственный экстремизм, библиометрический анализ, противодействие терроризму, программы реинтеграции.

Introduction

Over the past few decades, the topics of de-radicalization and extremism prevention have appeared at the center of attention in both scientific research and policymaking. With the global spread of radicalization driven by extremist ideologies and international networks, there is an urgent need to develop effective counter-strategies to prevent and mitigate threats to national and international security [1]. In this context, researchers are increasingly focusing on a multi-layered set of measures for deradicalization of aimed at preventing individuals and groups from using violent ideologies and patterns of behavior. For Kazakhstan, this area is also of scientific value, as the country is at the intersection of different cultural and religious traditions, being a multi-ethnic and multi-confessional state. Since the beginning of 2010, the republic has been implementing state initiatives to counter religious extremism and reintegrate into society people involved in radical practices [2]. The measures include both preventive activities and steps towards social and spiritual rehabilitation. Even though political attention to the problem is high, academic research on de-radicalization in Central Asia and the global arena remains fragmented and often limited to analysis of individual cases [3]. However, the bibliometric analysis of scientific publications helps to trace the development of scientific thought, identify the main research areas, and record existing gaps. The significance of this study lies in the need to structure scientific

ic approaches to the study of de-radicalization, conduct an analysis of publication activity, and assess the contribution of Kazakh scientists to the formation of global discourse. The use of bibliometric analysis based on Scopus data will allow us to identify key scientific trends and indicate directions for further research.

Purpose of the study. The study aims to refine existing scientific methodologies, tracking the progress of publishing activities, identifying priority research topics, authors and journals, and providing ideas or perspectives for further research.

Research questions. What trends, institutions and directions are evident in the current scientific discourse on de-radicalization in Scopus-indexed materials? This task will focus on the following:

1. Which journals and authors play a crucial role in shaping the research agenda?

2. How has the number of publications changed over the past twenty years?

3. What concepts and methodological approaches are most in demand?

4. Which areas are not well understood but offer opportunities for future research?

The relevance of the analysis is due to its contribution to understanding and systematizing existing knowledge in the field of de-radicalization. In the face of growing transnational threats related to violent extremism, structuring scientific publications allows not only to identify the most promising research areas, but also to track changes in scientific discourse over time, including new emphases, digital radicalization and the

impact of social media. In addition, bibliometric analysis contributes to the identification of regional and disciplinary gaps, which further confirms the importance of interdisciplinary studies. Thus, the study not only expands the theoretical base but also forms the basis for the development of scientifically based practical recommendations for professionals working in the field of countering extremism and de-radicalization, as well as strengthening public security.

Literature review

The phenomenon of de-radicalization in recent decades has become one of the main themes of academic discourse on violent extremism, terrorism and national security issues. The significant jump in the number of works is still not accompanied by consensus on the content of de-radicalization, its limits and the criteria for success [4]. The diversity of interpretations reflects the multidimensionality of this process, which includes political, social, psychological and cultural aspects. One of the most discussed aspects of the literature is the assertion about the effectiveness of de-radicalization programs. The effectiveness of these legal initiatives cannot be measured in any acceptable way their effectiveness varies according to the category of participants, conditions of implementation, and methods used. In addition, the empirical base remains small, which makes it challenging to formulate common evaluation standards [5]. However, even partial results of the programmes have significantly reduced the risks associated with violent extremism. In comparison of deradicalization with the concept of "refusal" from a criminal life, it is emphasized that in both cases similar mechanisms of change are observed. After all, there is a change in identity, the preservation of significant social connections and the emergence of alternative life scenarios and in this case. As a result, deradicalization is characterized by a pronounced ideological component, requiring the use of specific means of influence. Reuters [5], based on the analysis of interviews with people and professionals who have left extremist movements, found that the processes of radicalization and de-radicalization are mainly due to similar motives: aspiration to belonging, search for meaning in life, and need for status. Identity crisis, loss of trust in the organization, and disillusionment with ideology can become key triggers for exit, so the narrative approach reinforces understanding of de-radicalization as a complex process of rethinking life experience. Da Silva [6] have shown that de-radicalization is not

related to a short-term rejection of ideology, but to the progressive transformation of individuals' "I-positions", which form new meaning structures. This approach explains why change can be sustainable, and highlights the important role of social and cultural factors in restoring identity. Institutional programs are also being studied. Ulyana [7] considers the experience of Indonesia, where "soft re-socialization" programs include families and work directly with young people. The authors emphasize that the use of an integrative approach and cultural sensitivity contribute to the preservation of results. In Europe, Germany is an example of an integrated model. Baaken [8] describes the development of a hybrid model combining state and civil initiatives, focusing on four areas: prevention, work with prisons, exit programs and social reintegration. However, the diversity of definitions and performance indicators continues to make it difficult to harmonize these approaches. In addition to the individual and institutional levels, mass de-radicalization processes are also important. The results of a study conducted in Chile after the 2019 protests showed that support for radical action among young people has fallen. Confidence in the police has increased, suggesting that de-radicalization may result from more than just institutional programs, potentially due to large-scale political changes affecting public opinion [9].

Further analysis of radicalization and de-radicalization processes in Central Asia in recent years has become a key area of academic research, as the region is an area of increased vulnerability to extremist threats due to its geopolitical position, Demographic characteristics and socio-economic difficulties. Recent scientific literature demonstrates a step-by-step transition from descriptive cases to a more systematic approach, which emphasizes gender aspects, the influence of digital media, as well as the institutional and cultural specificities of countries in the region. One trend is the growing interest in female radicalization and deradicalization. In the past, researchers primarily focused on men involved in extremist movements. Recently, women have been recognized as a distinct social group facing unique risks. There is a clear need for a thorough approach to the deradicalization of women that includes religious education, psychosocial support, and social rehabilitation activities. Special attention is given to the role of family and programs designed to assist not just the women, but also their children [10]. Similar insights come from Kagazbekova's study [11], which examines the return of women from conflict zones in Kazakhstan.

The authors highlight the need to decrease stigma and broaden social adaptation strategies. A new focus in research is emerging, stressing that the deradicalization of women must consider cultural, familial, and religious contexts.

Another area of focus is studying national strategies and their effectiveness. Kazakhstan is often cited as having the most established deradicalization model in Central Asia. This national approach blends state and non-state efforts. It involves theologians, psychologists, social workers, and educational programs [12]. The approach also addresses the repatriation and rehabilitation of individuals returning from conflict zones. This indicates that the Kazakhstani model includes preventive measures, resocialization, and post-conflict support. It creates a hybrid system that fits the country's diverse ethnic and religious context [13]. Kyrgyzstan stands out for its focus on engaging with young audiences through digital platforms. Social media is used for prevention and counter-narrative efforts [11]. Using digital communications shows that media can be an effective tool. It can spread not only radical content but also alternative narratives and critical thinking. Experience indicates the potential of innovative communication strategies to fight radicalization. In Uzbekistan and Tajikistan, studies reveal strict state control in religious matters. Long-standing restrictive measures include bans on religious clothing and the involvement of minors in religious practices [13]. These actions have limited the activities of radical groups. However, they have also led to hidden forms of radicalization and increased distrust between the state and religious organizations.

Based on the literature review, several consistent trends are evident. First, deradicalization in Central Asia is taking on a clear gender aspect. The focus on women and children, who are seen as particularly vulnerable groups, is increasing. Second, national strategies show notable differences. Kazakhstan is developing a model centered on institutions and partnerships with civil society. Kyrgyzstan is using digital tools, while Uzbekistan and Tajikistan are emphasizing strict control over the religious sphere [14], [15]. Third, there is a growing interest in psychosocial reintegration and the long-term monitoring of program effectiveness. However, significant gaps still exist. The lack of cross-country comparative studies makes it hard to pinpoint both universal and unique factors that contribute to successful deradicalization. The empirical foundation is limited most studies analyze individual cases without representative samples. Additionally, the absence of a common

conceptual framework leads to varying interpretations of terms like "deradicalization," "disengagement," and "counterradicalization." Consequently, the academic discussion on deradicalization in Central Asia is moving toward institutionalization and a broader agenda. Researchers are shifting from descriptive studies to analyzing the structural factors that contribute to program success. In the future, we can expect a growing interest in interdisciplinary approaches [13], [16]. This includes comparing regional and international experiences and developing more effective methods for assessing deradicalization practices. Research shows that deradicalization does not follow a one-size-fits-all model. The study requires an interdisciplinary approach that considers individual, cultural, and institutional factors. Even though there has been an increase in publications, there are still methodological gaps. There is a lack of long-term studies, and some regions, like Central Asia, Africa, and Latin America, are underrepresented. This highlights the need for more comparative research and the development of shared methodological standards.

Methodology

This study used bibliometric analysis with the international Scopus database. This method enabled the organization and examination of trends in scientific publications on deradicalization from 2000 to 2025. We searched for publications using the following search query:

TITLE-ABS-KEY ("deradicalization") AND (LIMIT-TO (SUBJAREA, "SOC") OR LIMIT-TO (SUBJAREA, "ARTS") OR LIMIT-TO (SUBJAREA, "PSYC") OR LIMIT-TO (SUBJAREA, "MEDI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))

At the first stage, we exported bibliometric metadata that included authors, article titles, abstracts, keywords, journal titles, and publication years. We pre-cleaned the data set using the PRISMA method. We removed duplicates, standardized key terms, and unified author records. In the second stage, we analyzed publication activity. This helped us track the changing scientific interest in deradicalization from 2000 to 2025 and identify the most active journals, authors, and countries in this research area. We used VOSviewer software to visualize and pinpoint thematic connections. We created maps for co-authorship, co-citation, and co-use of keywords. This allowed us to find the main clusters of scientific topics and understand the structure of deradicalization research. For a more detailed

statistical analysis, we used the bibliometrix package in the R Studio environment. The combined use of Scopus, VOSviewer, and R Studio gave us a thorough way to analyze publication activity. It helped us uncover both quantitative and qualitative trends in deradicalization research. However, it is important to note that focusing only on English-language publications may leave out significant works written in Russian or other national languages of Central Asian countries.

Main part

The bibliometric analysis showed us how scientific discussions on deradicalization developed from 2000 to 2025. We focused on the number of publications and citation levels. We also identified key stages in the growth of this research field. The data collected helps us see how deradicalization became a recognized topic in the international scientific community. It also highlights the main trends in its evolution.

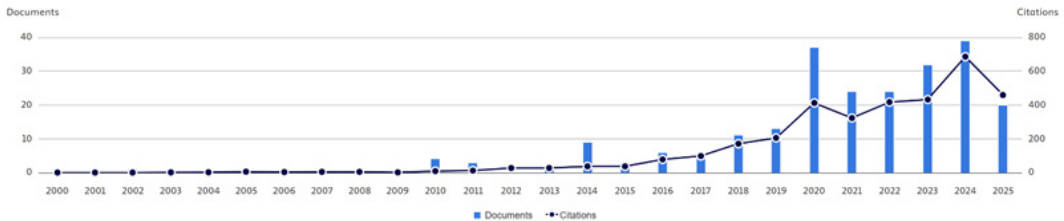


Figure 1 - Dynamics of Publications and Citations on the Topic of Deradicalization in the Scopus Database (2000–2025)

An analysis of publication activity in deradicalization studies from 2000 to 2025 shows a clear upward trend with a noticeable acceleration after the mid-2010s. During the first ten years, from 2000 to 2010, there were almost no publications. This indicates a limited development of the research field and limited interest among scientists. The first few articles started to appear in the early 2010s, but their numbers remained low until 2015. Since 2016, there has been a consistent increase in the number of publications each year. A significant rise occurred between 2018 and 2021, when the number of documents increased several times. The peak of publication activity occurred in 2020 and 2023, with over 30 articles published each year. At the same time, the citation rate also rose sharply. Before

2015, articles received almost no citations, but after 2018, the number of citations grew rapidly, reaching around 800 citations by 2023. From 2022 to 2025, high activity continued, with 25 to 30 studies published each year. The number of citations confirms the strong interest among researchers in previous studies. This highlights the development of a mature research area, where both the number of studies and their academic impact are increasing. As mentioned earlier in the literature review, the data indicate that deradicalization research has evolved into an independent interdisciplinary field that has grown significantly in recent years.

Further analysis of the most cited publications on the topic of deradicalization allows us to identify several key research trends (see Table 1).

Table 1 - Top-10 Most Cited Articles on Deradicalization

No.	Authors	Article Title	Journal	Year	Citations
1	Kruglanski, A.W., Gelfand, M.J., Bélanger, J.J., Hetiarachi, M., Gunaratna, R. [14]	The psychology of radicalization and deradicalization: How significance quest impacts violent extremism	<i>Political Psychology</i>	2014	601
2	Webber, D., Babush, M., Schori-Eyal, N., Kruglanski, A.W., Gelfand, M.J. [18]	The road to extremism: Field and experimental evidence that significance loss-induced need for closure fosters radicalization	<i>Journal of Personality and Social Psychology</i>	2018	180
3	Altier, M.B., Thoroughgood, C.N., Horgan, J.G. [4]	Turning away from terrorism: Lessons from psychology, sociology, and criminology	<i>Journal of Peace Research</i>	2014	139
4	Webber, D., Chernikova, M., Kruglanski, A.W., Lafreniere, M.-A., Belanger, J.J. [19]	Deradicalizing Detained Terrorists	<i>Political Psychology</i>	2018	89
5	Reinares, F. [15]	Exit from terrorism: A qualitative empirical study on disengagement and deradicalization among members of ETA	<i>Terrorism and Political Violence</i>	2011	88

6	Khalil, J., Horgan, J., Zeuthen, M. [17]	The Attitudes-Behaviors Corrective (ABC) Model of Violent Extremism	<i>Terrorism and Political Violence</i>	2022	87
7	Louis, W., Thomas, E., McGarty, C., Amiot, C., Moghaddam, F. [16]	The Volatility of Collective Action: Theoretical Analysis and Empirical Data	<i>Political Psychology</i>	2020	87
8	Coolsaet, R. [20]	EU counterterrorism strategy: Value added or chimera?	<i>International Affairs</i>	2010	74
9	Benson, K., Nagar, R. [21]	Collaboration as resistance? Reconsidering the processes, products, and possibilities of feminist oral history and ethnography	<i>Gender Place and Culture</i>	2006	70
10	Winter, C., Neumann, P., Meleagrou-Hitchens, A., Vidino, L., Fürst, J. [1]	Online extremism: Research trends in internet activism, radicalization, and counter-strategies	<i>International Journal of Conflict and Violence</i>	2020	69

An analysis of publication activity in deradicalization research from 2000 to 2025 shows a clear upward trend with a noticeable acceleration after the mid-2010s. During the first ten years, from 2000 to 2010, there were almost no publications. This indicates weak development of the research field and limited interest among scientists. The first few articles started to appear in the early 2010s, but their numbers remained low until 2015. Since 2016, there has been a consistent increase in the number of publications each year. A significant rise occurred between 2018 and 2021, when the number of documents increased several times. The peak of publication activity occurred in 2020 and 2023, with over 30 articles published each year. At the same time, the citation rate also rose sharply. Before 2015, articles received almost no citations, but after 2018, the number of citations skyrocketed, reaching around 800 references by 2023. From 2022 to 2025, high activity continued, with 25 to 30 studies published each year. The number of citations confirms the strong interest among researchers in previous studies. This highlights the development of a mature research area, where both the number of studies and their academic impact are increasing. As mentioned earlier in the literature review, the data indicate that deradicalization research has become an independent interdisciplinary field that has grown significantly in recent years.

The next direction involves empirical research on specific cases and programs. Deradicalization is mainly individualized, and the success of exit relies on a mix of social, psychological, and institutional factors [15]. Programs that work with imprisoned terrorists highlight the need to combine theological, educational, and psychological interventions. These studies show that deradicalization practices cannot be universalized and must consider contextual features. Another noticeable trend is the creation of new theoretical and methodological models. Additionally, researchers are tracking the development of models that explain the link between attitudes, behavior, and prohibitions. An analysis of the changing nature

of collective actions reveals deradicalization as a shift in the dynamics of protest participation. The general conclusion from these two models is that they shift the focus of research from the individual to macro-sociology [16], [17]. The analysis indicates that deradicalization research is structured around three principal axes:

1. Psychological mechanisms and cognitive models explain radicalization and its reverse processes;
2. Empirical cases and institutional programs show practical approaches;
3. New challenges arise from digitalization and the changing political strategies.

The most cited works highlight both academic interest in the problem and its practical importance. The results of these studies are actively used to shape state and international strategies against violent extremism. The geographical analysis shows that most publications on deradicalization focus on North America and Western Europe (see Figure 2).

The United States leads in the number of publications, showing strong institutional and academic interest in countering extremism. Canada also contributes significantly, reflecting a consistent interest in radicalization within its multicultural society. In Europe, France, Great Britain, Germany, and the Scandinavian countries are the most active. Their engagement reflects their historical experiences of fighting domestic extremism and addresses new challenges like migration crises and transnational terrorist threats. Turkey is in the middle, showing a growing interest in deradicalization amid its regional issues. In Asia, India, Indonesia, and the Philippines play important roles, with research focused on local forms of radicalism and armed conflicts. China and Japan have been relatively less active, but their interest

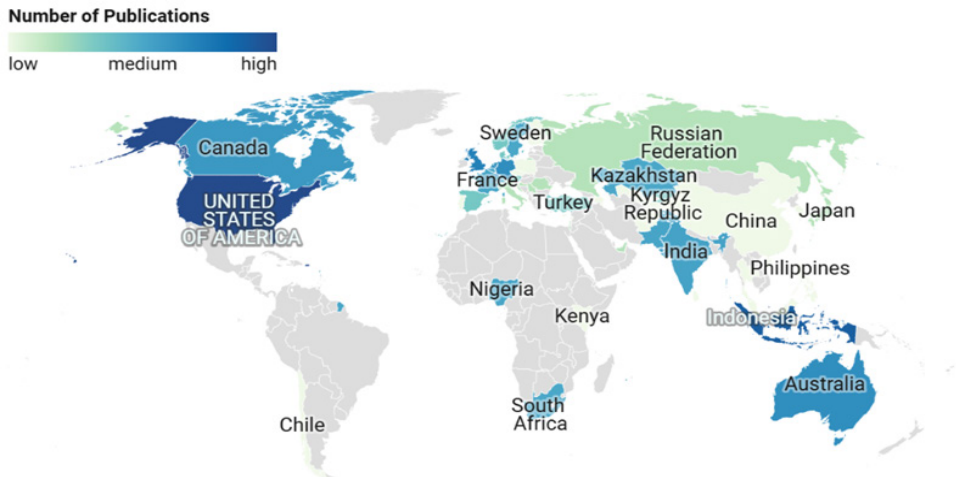


Figure 2 - Geographical Distribution of Publications on the Topic of "Deradicalization"

in the topic has been increasing in recent years due to rising security concerns. In Central Asia, Kazakhstan and Kyrgyzstan represent a gradual growth in research within the post-Soviet space. Russia also plays a key role, but its publication activity is moderate compared to Western countries. Australia and South Africa actively engage in global research, connecting deradicalization with regional security and multiculturalism. Overall, three main trends stand out. First, English-speaking countries play a dominant role. Second, European countries are actively involved due to their

political and social sensitivity to radicalization issues. Third, there is a gradual rise in the involvement of Asian and Central Asian countries, where research is closely linked to regional threats and the unique aspects of the socio-cultural environment.

Thematic map of deradicalization research

Examining the results obtained with VOSviewer (Figure 3) and R Studio (Figure 4) helps us identify common and differing trends in the structure of the deradicalization research field.

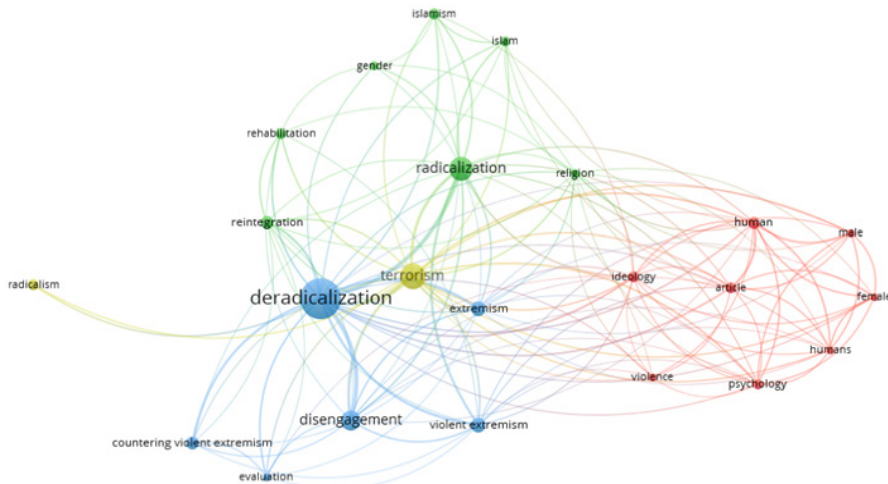


Figure 3 - Map of Key Concepts in Deradicalization Research

The co-occurrence map shows how key concepts group and interact, but it doesn't fully show the developmental maturity or strategic importance of these themes. Thus, the next step is to use R Studio for thematic analysis. This will help us evaluate the evolution, centrality, and research significance of each thematic cluster over time.

Moving from structural mapping to thematic positioning gives us a better understanding of the deradicalization research field.

Both maps highlight that the central and consistent themes are "deradicalization", "terrorism", and "radicalization". In VOSviewer, these themes form the center of the network of co-mentions.

In the thematic map of R Studio, they fall under “motor themes” which are key areas that are actively developing and shape future research directions. This shows a strong link between the deradicalization theme and the broader issues of terrorism and violent extremism. Next, the thematic map of R Studio shows themes that are emerging or declining in interest. These include “online radicalization”, “moderation” and “auton-

omy”, which are in the quadrant for “emerging or declining themes”. This reflects changing interest in the online space. At different times, the digital environment is seen as a significant factor in radicalization. However, research on its role in deradicalization is still not very thorough. In the VOSviewer map, these themes are present but appear as a peripheral cluster, indicating the direction’s lack of institutional support.

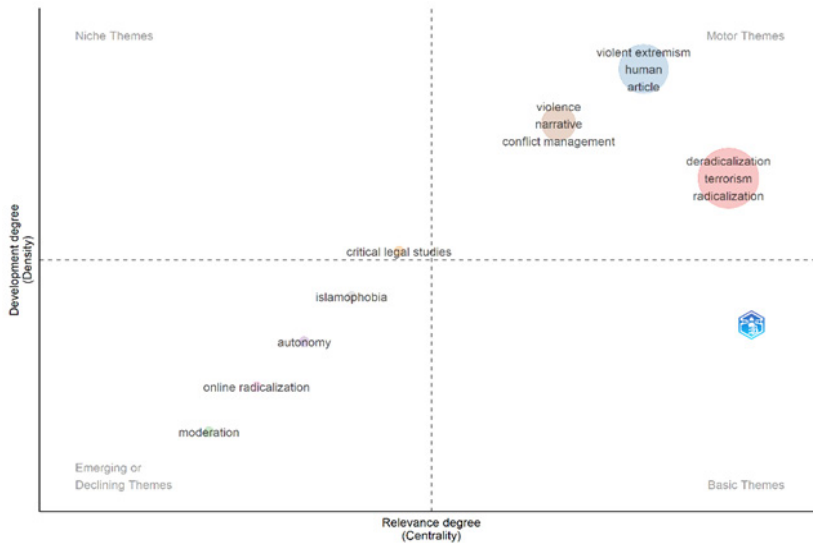


Figure 4 - Thematic Map of Deradicalization Research (R Studio, 2000–2025)

Third, R Studio includes themes related to “islamophobia” and “critical legal studies”. These occupy a middle ground between central and niche themes. Their presence is less evident in the VOSviewer results. However, their identification in R Studio suggests that legal and socio-cultural issues linked to human rights, discrimination, and legal methods for fighting extremism are gradually entering the deradicalization field. Fourth, VOSviewer clearly shows the psychological and gender clusters of “ideology”, “psychology” and “male/female”. In R Studio, these themes are combined into the “motor themes” and “basic themes” categories. Comparing the two maps reveals that the deradicalization research area has a well-defined core alongside several peripheral themes that are developing. The primary trend is expanding the interdisciplinary approach, incorporating psychological, social, legal, gender, and digital aspects. This indicates a shift from narrow-focused strategies to a broader understanding of the deradicalization phenomenon.

The next analysis in figure 5 allows tracing the evolution of scientific interest towards the topic of de-radicalization. The top panel shows the accumulated publication growth curve, which demonstrates the classical S-shaped trajectory

characteristic of developing scientific fields. Until the mid-2000s, the field remained practically undeveloped, as evidenced by a slow and almost horizontal curve. There has been a surge since about 2014-2015, coinciding with the global rise in attention to violent extremism, terrorist networks and state reintegration programs. Accelerated growth continues until 2020-2023, after which the curve comes to the plateau phase, indicating that the research area has reached the stage of scientific maturity and the main body of basic work is already formed. Key theoretical and methodological concepts have been institutionalized, and opportunities for extensive growth have been filled. The bottom panel reflects the annual life cycle of publications, showing even more clearly the dynamics of interest. The peak of publication activity is in 2019-2022, with 2020 marked as a key peak. During this period the number of articles reaches its maximum level, which is due to two factors:

1. Strengthening international preventing/ countering violent extremism initiatives;
2. Expansion of interdisciplinary approaches growth of research in psychology, sociology, digital communication and legal sciences.

After 2022, there is a decline in annual activity, which is interpreted not as a decrease in interest,

but as stabilization of the field: the main set of studies has already been published, and further growth is possible only through the emergence of new thematic niches gender studies, digital

deradicalization, comparative regional analysis). The high value of the determinism factor ($R^2 = 0.858$) confirms the statistical accuracy of the model and the stability of the detected trends.

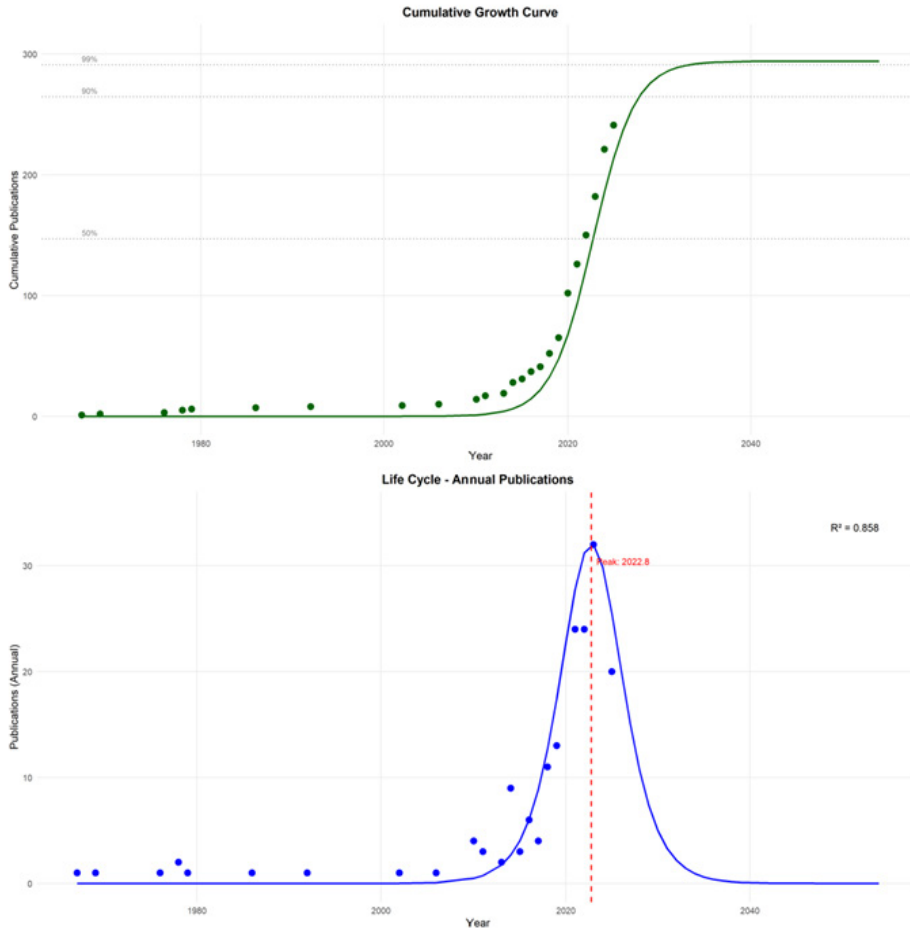


Figure 5 - Dynamics of Accumulated Growth and Life Cycle of Publications on the Topic of Deradicalization (2000-2025)

Thus, the publication lifecycle shows that the area of de-radicalization has moved from inception and rapid jumps in development to maturity and conceptual structuring. These data are consistent with the conclusions of thematic and citation analysis, confirming the interdisciplinary nature of the formation of scientific discourse and indicating prospects for further research within new challenges and regional contexts.

Discussion

The bibliometric analysis shows that the topic of deradicalization has gradually become well-known and has secured a stable position in international academic discussions. It is important to highlight that there has been a notable increase

in theoretical and methodological approaches to studying this issue, alongside the rise in the number of publications and their citations. The discussion of the research area centers on its institutionalization, interdisciplinary nature, and the growing diversity of regional and thematic topics.

Institutionalization and scientific maturity of the field. One key conclusion is that deradicalization, which was a niche topic in the early 2000s, has evolved into a research field with its own concepts and theories, along with stable scientific communities [9], [16]. This development follows the broader trends in related disciplines. In academia, deradicalization grows through critical mobilization. Interest rises in response to political and social crises. This interest then becomes institutionalized with publications, conferences, and

research centers. However, the field is unevenly developed, as leading countries shape the theoretical agenda. Meanwhile, many regions mainly serve as subjects of research, rather than as active contributors to knowledge. This raises the question of whether Western academic institutions largely influence the global discussion on deradicalization.

Interdisciplinary approach and expansion of analysis. Today, many see deradicalization as an interdisciplinary field. Psychological models Kruglanski et al. [14] Webber et al. [19] play an important role by explaining why people become extremists through their search for meaning and their thought patterns. Sociological and criminological views support this by comparing deradicalization to stopping criminal behavior [11], [20]. Social connections, job opportunities, and the existence of "alternative identities" are important factors in this process. Recently, more attention has turned to legal and political issues. By looking at topics like critical law and Islamophobia, researchers aim to understand not just the internal drivers of radicalization but also the broader issues of discrimination, legal hurdles, and government actions that reinforce marginalization. Deradicalization is seen as more than just an individual or psychological issue. It is a complex phenomenon with personal, social, and institutional factors all playing significant roles [10], [21].

The digital environment plays a key role in today's research. The digital space presents both a threat and a resource for deradicalization. The past decade, publications have increasingly focused on counter-narratives, disseminating positive content and promoting digital literacy to combat extremism. The analysis shows that this area remains unstable. It fluctuates between being an "emerging topic" and a "fading topic". In short, it has not yet become a steady part of the research field, despite its importance [7], [11], [22]. This can be attributed to the challenge of measuring online processes and a lack of empirical data. The future of deradicalization research will likely be closely tied to digital security and the examination of social media algorithms. This will require collaboration among experts in political science, cybersecurity, and psychology.

Gender and social aspects. The increasing focus on gender issues in deradicalization discussions indicates a change from general models to more specific approaches. Gender studies examine not only how women engage in extremism but also their role as "agents of change" in deradicalization efforts [9; 20]. This aligns with global trends in the humanities, which emphasize the importance of vulnerable and marginalized groups for last-

ing change. The interest in helping women and children who have returned from conflict zones shows that deradicalization is seen not just as a rejection of violence but also as a broader path to social integration. There is a movement away from limited preventive measures toward more thorough programs for resocialization and rebuilding connections between individuals and society.

Conclusion

In conclusion, the study achieved its goal by organizing aspects of deradicalization through bibliometric and thematic analyses. It also identified key concepts, institutional and geographical centers, as well as research issues in this area. Looking at the first research question, we see that the agenda arises from different fields, including religious studies, sociology, political science, psychology, and studies on terrorism and conflict. At the same time, psychological models of motivation and the search for meaning connect with sociology and criminology related to desistance, creating stable groups of co-citation and methodological fit. Further addressing the second question, publication activity has shifted from fragmented studies to a more unified direction. Citations have also increased over time, with most articles focusing on cases that evaluate the effectiveness of programs. The response to the third question shows that the three main areas are clearest from a psychological perspective. Here, authors emphasize methods, algorithms, and mechanisms that help individuals escape extremism. Additionally, the social aspect is examined through legal and gender lenses, highlighting methodological considerations. In response to the final question, it was found that the long-term sustainability of deradicalization results, along with the human rights and legal frameworks of programs and regional specifics, are not well studied.

Funding

This scientific article was funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan on the basis of the Project (Grant No. AP26104327 "Development of an Artificial Intelligence algorithm to promote interreligious dialogue and strengthen national unity: algorithms for analyzing religious texts and creating a platform for cultural interaction").

Reference

1 Neumann P.R. The trouble with radicalization // *International Affairs*. – 2013. – №4(89). – P. 873–893.

- 2 Seitakhmetova N., Aliyarov E., Zhandossova S., Tolen Z., Nurov M. Counteracting Religious Extremism in Youth Environments: World Experience and Kazakhstan // *Journal of Social Studies Education Research*. – 2024. – №3(15). – P. 257–288.
- 3 Lemon E. Securitisation of religion in Central Asia // *Routledge Handbook of Contemporary Central Asia*. – London: Routledge, 2021. – P. 422–436.
- 4 Altier M.B., Thoroughgood C.N., Horgan J.G. Turning away from terrorism: Lessons from psychology, sociology, and criminology // *Journal of Peace Research*. – 2014. – №5(51). – P. 647–661.
- 5 Raets S. Desistance, disengagement, and deradicalization: A cross-field comparison // *International Journal of Offender Therapy and Comparative Criminology*. – 2024. – №4(68). – P. 389–426.
- 6 Da Silva R., Fernández-Navarro P., Gonçalves M.M., Rosa C., Silva J. Disengagement from political violence and deradicalization: A narrative-dialogical perspective // *Narrative, Political Violence and Social Change*. – London: Routledge, 2021. – P. 17–40.
- 7 Ulyana Y.A., Riyansyah A. De-radicalization program: The case study of Indonesia // *International Journal of Business, Economics, and Social Development*. – 2021. – №2(2). – P. 78–88.
- 8 Baaken T., Korn J., Ruf M., Walkenhorst D. Dissecting deradicalization: Challenges for theory and practice in Germany // *International Journal of Conflict and Violence*. – 2020. – №14. – P. 1–18.
- 9 Zúñiga C., Navarro K., Asún R.A., Espinosa-Ibacache J., Isla J. People don't change. Are you sure? Deradicalization of opinion among young people // *Political Psychology*. – 2025. – P. 1–20.
- 10 Zhetpisbay N., Kalyakbar U., Bishmanov K., Achilov D. Key aspects of conducting deradicalization efforts among women // *Eurasian Journal of Religious Studies*. – 2025. – №2(42). – P. 30–39.
- 11 Kagazbekova S., Onggar Y., Zатов K. Religious radicalism and gender in modern Kazakhstan from an Islamic perspective // *European Journal of Science and Theology*. – 2025. – №2(21). – P. 45–62.
- 12 Tuluybaevich T.T., Almatkyzy T.A. Kazakhstan's experience of deradicalization // Proceedings of the 2nd International Scientific Conference "Scientific Research and Experimental Development". – London: University of Hull, 2023. – P. 20.
- 13 Babar S.I., Rizvi F.A. Deradicalization in Central Asia: A Critical Appraisal // *Central Asia*. – 2021. – №89. – P. 33–54.
- 14 Kruglanski A.W., Gelfand M.J., Bélanger J.J., Sheveland A., Hettiarachchi M., Gunaratna R. The psychology of radicalization and deradicalization: How significance quest impacts violent extremism // *Political Psychology*. – 2014. – №35. – P. 69–93.
- 15 Reinares F. Exit from terrorism: A qualitative empirical study on disengagement and deradicalization among members of ETA // *Terrorism and Political Violence*. – 2011. – №5(23). – P. 780–803.
- 16 Louis W., Thomas E., McGarty C., Lizzio-Wilson M., Amiot C., Moghaddam F. The volatility of collective action: Theoretical analysis and empirical data // *Political Psychology*. – 2020. – №41. – P. 35–74.
- 17 Khalil J., Horgan J., Zeuthen M. The Attitudes-Behaviors Corrective (ABC) model of violent extremism // *Terrorism and Political Violence*. – 2022. – №3(34). – P. 425–450.
- 18 Webber D., Babush M., Schori-Eyal N., Vazeou-Nieuwenhuis A., Hettiarachchi M., Bélanger J.J., Gelfand M.J. The road to extremism: Field and experimental evidence that significance loss-induced need for closure fosters radicalization // *Journal of Personality and Social Psychology*. – 2018. – №2(114). – P. 270–285.
- 19 Webber D., Chernikova M., Kruglanski A.W., Gelfand M.J., Hettiarachchi M., Gunaratna R., Bélanger J.J. Deradicalizing detained terrorists // *Political Psychology*. – 2018. – №3(39). – P. 539–556.
- 20 Coolsaet R. EU counterterrorism strategy: value added or chimera? // *International Affairs*. – 2010. – №4(86). – P. 857–873.
- 21 Reshetnyak A., Omelicheva M. A framework for explaining national P/CVE programs: A case study of Kazakhstan // *Studies in Conflict & Terrorism*. – 2025. – №2(48). – P. 161–178.
- 22 Zhetpisbay N. et al. Key aspects of conducting deradicalization efforts among women // *Eurasian Journal of Religious Studies*. – 2025. – T. 42. – №. 2. – P. 30–39.
- 23 Seitakhmetova N. et al. Counteracting religious extremism in youth environments: world experience and Kazakhstan // *Journal of Social Studies Education Research*. – 2024. – T. 15. – №. 3. – P. 257–288.
- 24 Reshetnyak A., Omelicheva M. A framework for explaining national P/CVE programs: A case study of Kazakhstan // *Studies in Conflict & Terrorism*. – 2025. – T. 48. – №. 2. – P. 161–178.
- 25 Kumar Y. De-radicalizing the youth in Kyrgyzstan via social media and its implications for Central Asia // *Farabi Journal of Social Sciences*. – 2021. – №2(7). – P. 21–28.
- 26 Kumar Y. De-radicalizing the youth in Kyrgyzstan via social media and its implications for Central Asia // *Farabi Journal of Social Sciences*. – 2021. – T. 7. – №. 2. – P. 21–28.
- 27 Babar S. I., Rizvi F. A. Deradicalization in Central Asia: A Critical Appraisal // *Central Asia*. – 2021. – T. 89. – №. Winter. – P. 33–54.
- 28 Fozilova D. Dialectical Radicalization: State–Islam Dynamics in Uzbekistan // *Radical Revival: The Complex Dynamics of Islam and State in Uzbekistan*. – Singapore: Springer Nature Singapore, 2026. – C. 71–97.
- 29 Soliev N. Rehabilitation of terrorists and extremists: An overview of Uzbekistan's experience // *International Case Studies of Terrorist Rehabilitation*. – 2018. – P. 113–141.
- 30 Thibault H. The secular and the religious in Tajikistan: contested political spaces // *Studies in Religion/Sciences Religieuses*. – 2013. – T. 42. – №. 2. – P. 173–189.

Author Contributions: Kalyakbar U.N. conceived the study, conducted the literature search and bibliometric data collection, performed data analysis using VOSviewer and R Studio, interpreted the results, and prepared the original manuscript draft. Bishmanov K.M. contributed to the conceptualization of the research, supervised the study, participated in the interpretation of findings, critically reviewed and edited the manuscript, and approved the final version for publication.

INFORMATION ABOUT AUTHORS

Uldana Kalyakbar

PhD student, Al-Farabi Kazakh National University, Almaty, Kazakhstan, e-mail: umka_993@mail.ru, ORCID ID: 0009-0009-2194-2519

Kakimzhan Bishmanov

Professor, Candidate of Legal Sciences, Al-Farabi Kazakh National University, Almaty, Kazakhstan, e-mail: bkm58@mail.ru, ORCID ID: 0000-0002-6188-6189

Ұлдана Қалияқбар

PhD докторант, Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан, e-mail: umka_993@mail.ru, ORCID ID: 0009-0009-2194-2519

Какимжан Мұратжанович Бишманов

профессор, заң ғылымдарының кандидаты, Әл-Фараби атындағы Қазақ ұлттық университеті; Алматы, Қазақстан, e-mail: bkm58@mail.ru, ORCID ID: 0000-0002-6188-6189

Улдана Калякбар

PhD докторант, Казахский национальный университет имени аль-Фараби, Алматы, Казахстан, e-mail: umka_993@mail.ru, ORCID ID: 0009-0009-2194-2519

Какимжан Муратжанович Бишманов

профессор, кандидат юридических наук, Казахский национальный университет имени аль-Фараби, Алматы, Казахстан, e-mail: bkm58@mail.ru, ORCID ID: 0000-0002-6188-6189

