

The Impact of Artificial Intelligence Technologies on the Study of Family Issues and Social Relationships in Israeli Society

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Abstract: Artificial Intelligence (AI) has become one of the most influential technological innovations shaping contemporary social science research. The increasing availability of digital data and advanced analytical techniques has enabled researchers to explore social phenomena with unprecedented accuracy and efficiency. This study examines the impact of artificial intelligence technologies on the study of family issues and social relationships in Israeli society. It focuses on the role of AI applications, including machine learning, natural language processing, big data analytics, and predictive modeling, in enhancing the understanding of family dynamics, interpersonal relationships, and social behavior.

The study adopts a descriptive-analytical approach based on an extensive review of academic literature, scholarly publications, and institutional reports addressing artificial intelligence and its applications in social research. The analysis demonstrates that AI technologies provide significant opportunities for improving data collection, identifying behavioral patterns, analyzing communication networks, and supporting evidence-based policymaking. Furthermore, AI-assisted methods facilitate the examination of demographic changes, family structures, and social interactions within diverse communities.

The findings indicate that artificial intelligence can significantly enhance the understanding of family issues and social relationships by analyzing large datasets efficiently. However, its use also raises important challenges related to privacy, data security, algorithmic bias, transparency, and ethical responsibility.

Keywords: Artificial Intelligence, Family Issues, Social Relationships, Israeli Society, Machine Learning.

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أثر استخدام تقنيات الذكاء الاصطناعي في دراسة قضايا الأسرة والعلاقات الاجتماعية في المجتمع الإسرائيلي

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ملخص: أصبح الذكاء الاصطناعي أحد أهم التطورات التكنولوجية التي أثرت بصورة جوهرية في مناهج البحث العلمي المعاصرة، ولا سيما في مجال العلوم الاجتماعية. وقد أتاح التطور المتسارع في تقنيات تحليل البيانات والقدرة على معالجة كميات ضخمة من المعلومات فرصاً جديدة لفهم الظواهر الاجتماعية بصورة أكثر دقة وعمقاً. تهدف هذه الدراسة إلى تحليل أثر استخدام تقنيات الذكاء الاصطناعي في دراسة قضايا الأسرة والعلاقات الاجتماعية في المجتمع الإسرائيلي، من خلال التركيز على تطبيقات الذكاء الاصطناعي المختلفة، مثل التعلم الآلي، ومعالجة اللغات الطبيعية، وتحليل البيانات الضخمة، والنمذجة التنبؤية. اعتمدت الدراسة على المنهج الوصفي التحليلي من خلال مراجعة وتحليل الأدبيات العلمية والدراسات السابقة والتقارير الصادرة عن المؤسسات الدولية والأكاديمية ذات الصلة. وقد أظهرت النتائج أن تقنيات الذكاء الاصطناعي تسهم بصورة فعالة في تحسين عمليات جمع البيانات وتحليلها، والكشف عن الأنماط السلوكية والاجتماعية، ودراسة شبكات التواصل والعلاقات الإنسانية، بما يدعم عملية صنع القرار القائم على الأدلة. كما بينت الدراسة أن الذكاء الاصطناعي يوفر إمكانيات كبيرة لفهم التحولات الديموغرافية، وأنماط العلاقات الأسرية، والتغيرات الاجتماعية في المجتمع الإسرائيلي، خاصة في ظل التنوع الثقافي والديني والتطور التكنولوجي الذي يميز هذا المجتمع. وفي المقابل، كشفت الدراسة عن عدد من التحديات المرتبطة باستخدام الذكاء الاصطناعي، من أهمها قضايا الخصوصية وحماية البيانات، والانحياز الخوارزمي، والشفافية، والمساءلة الأخلاقية.

الكلمات المفتاحية: الذكاء الاصطناعي، قضايا الأسرة، العلاقات الاجتماعية، المجتمع الإسرائيلي، التعلم الآلي

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1. Introduction:

Artificial intelligence (AI) has rapidly evolved into a powerful tool that is transforming research across various scientific disciplines, including the social sciences. Through technologies such as machine learning, natural language processing, and big data analytics, AI enables researchers to analyze massive datasets, identify hidden patterns, and generate predictive insights that support evidence-based decision-making (Russell & Norvig, 2021). These capabilities have expanded the scope of social research beyond traditional methods, allowing for a deeper understanding of complex social phenomena.

Family and social relationships represent fundamental areas of social science research because they influence socialization, emotional development, and social stability. Recent advances in AI have enabled researchers to examine family dynamics, demographic changes, and social behaviors using data collected from surveys, government databases, social media platforms, and digital communication networks (Giddens & Sutton, 2021; Kelleher et al., 2020). Consequently, AI has become an effective tool for understanding behavioral patterns and supporting the development of informed social policies.

Israeli society provides a distinctive context for studying the application of AI in family and social research due to its cultural, ethnic, and religious diversity, in addition to its position as one of the world's leading countries in technological innovation and digital transformation (Senor & Singer, 2011). The widespread use of digital communication has also generated extensive digital data that can be analyzed to understand family relationships, social interactions, and community behaviors more accurately (Kaplan & Haenlein, 2019).

Despite these significant advantages, the use of AI in social research raises important ethical and methodological concerns. Issues related to privacy protection, data security, algorithmic bias, transparency, and accountability remain major challenges, particularly when dealing with sensitive family and personal information. Biased algorithms may also

reinforce existing social inequalities if appropriate ethical safeguards are not implemented (Floridi et al., 2018).

Therefore, this study examines the role of artificial intelligence in understanding family issues and social relationships in Israeli society by exploring its applications, opportunities, and challenges, while contributing to the growing literature on the integration of AI technologies into social science research.

1.2 Research Problem

This will result in additional opportunities in the field of research and analysis of family issues, social relationships and interaction due to the growing deployment of AI technologies in social sciences research. However, there remains doubts about the efficacy, reliability, moral character and practicality of these technologies in studying family dynamics and social interactions in Israeli society.

1.3 Research Questions

1. AI is being used to deal with the issue of family in Israeli society in what ways?
2. How AI is used to analyze social relationships and behavioural patterns?
3. What roles can be played by AI technologies for social researchers/policymakers?
4. What are some ethical and methodological difficulties raised by the use of AI in family/social studies?

1.4 Research Objectives

1. To learn about the concept and evolution of the Ai technologies in social research.
2. To determine the primary sources of using AI to study the family and social relationships issues.
3. Analyze the role of the AI technologies in the comprehension of family and social life in Israeli society.

4. There are future prospects for this study, particularly regarding evaluating opportunities and issues within the realm of AI powered social investigation.
5. To make suggestions about how to be responsible with the use of AI technologies in the future of family and social studies.

1.5 Research Methodology

The methods used in conducting this study are descriptive-analytical and this method was chosen because it is one of the most appropriate methods that can be used in the study of social phenomena and new developments in technology today. The study is grounded on a comprehensive review and analysis of the literature (academic, peer-reviewed journal articles, books, institutional reports and official statistical publications) related to artificial intelligence, family studies and the family and social relationship. The data were secondary sources from the International organizations, academic databases and scholarly publications related to the applications of Artificial intelligence in social science research. The literature collected was critically analyzed, to uncover the significant trends, opportunities, challenges and ethical issues related to the utilization of AI technologies in relation to family issues and social relationships in Israeli society. This study does not do primary data collection which include survey and interview. Instead, it is about synthesising that which is known – and enunciating a complete theory analysis of the topic. Having this approach enables a wide range of research to be analysed and potential future areas of research in gaps to be identified.

1.6 Findings and Discussion

From the literature examined, artificial intelligence technology can be seen as using its technology to greatly broaden methodological capabilities when doing social sciences research. Through the use of AI tools, researchers can now process vast amounts of data, analyse communication and see social trends that would otherwise be intricate to find using traditional research techniques. The results show that the use of machine learning, NLP and big data analytics offer the potential to shed

light on phenomena related to families and social relations in Israeli society. These technologies help to know, know more; interact; and act as patterns of social interactions and structures of families are changing. The results, however, also indicate that AI tools and techniques in social research have faced a number of ethical and methodological challenges. Protection of privacy, algorithmic bias, transparency and accountability are significant privacy concerns that need ongoing attention by scholars and policy makers. While the discussion acknowledges that AI must be used as a complementary research strategy to other approaches, such as traditional social science methods, it does not outrightly dismiss their utility. The conversation does not completely denounce the usefulness of traditional social science research methods and techniques; rather, it recognizes the complementarity with AI research. By combining the computational techniques, with already well-developed qualitative and quantitative methods, they can create more in-depth and valid information regarding the family and social dynamics.

2. Conceptual and Theoretical Framework

2.1 Artificial Intelligence: Concept and Evolution

Artificial Intelligence (AI) has become one of the most influential technological developments of the 21st century. Although the idea of intelligent machines originated from early philosophical debates on human cognition, AI has evolved into an advanced scientific field integrating computer science, mathematics, statistics, cognitive psychology, and data science. It generally refers to computer systems capable of performing tasks associated with human intelligence, such as learning, reasoning, problem-solving, language understanding, and decision-making (Russell & Norvig, 2021).

AI has evolved from early rule-based systems to advanced machine learning and deep learning technologies capable of processing large datasets and generating predictive insights. Recent advances in computing power and data availability have expanded AI applications across numerous fields, including healthcare, education, public administration, and the social sciences (Goodfellow et al., 2016).

In recent years, AI has significantly enhanced research methodologies in the social sciences by enabling researchers to analyze large datasets, identify patterns, generate predictions, and visualize complex social phenomena. Consequently, AI is viewed not only as a technological innovation but also as a paradigm shift in knowledge production and scientific research (Joyce et al., 2021). Moreover, AI-powered digital platforms have transformed social communication and family relationships through content recommendation, communication tools, and user behavior analysis, providing new opportunities to study family dynamics and personal relationships in the digital age.

2.2 Artificial Intelligence Technologies in Social Research

AI has also revolutionized and advanced social science research with novel methodologies, making it easier for researchers to gather, process and analyze information. The analysis of family problems and social relationships has taken on particular importance for several technologies of the artificial intelligence.

2.2.1 Machine Learning

Machine learning is one area of AI in which computer systems can detect patterns in data and predict what will happen next, without the explicit programming of all the scenarios. Large amounts of data can be processed by machine learning algorithms and patterns that might not have been identified using classical methods of statistical analysis (Russell & Norvig, 2021). In the realm of social research, machine learning can help analyze demographic patterns, trends in family structures, and social behaviors. Predictive models can be used to uncover variables that are linked to marital instability, family conflict, childbearing and socialization. These capabilities enhance social analysis sophistication and enable evidence-informed policy making. Furthermore, with machine learning one can categorize social phenomena according to specific characteristics and also offer forecasts of future developments. This predictive capability is of special significance in research on transformational processes of family relationships and social solidarity.

2.2.2 Natural Language Processing

One of the most crucial AI technologies employed in social research is Natural Language Processing (NLP). NLP can be used in the analysis, interpretation and understanding of human language (written or spoken) by a computer system. With the growing abundance of data surrounding social interactions and public discourse in digital mediums, the relevance of NLP in those areas has grown. Many professionals who are studying aspects of families use NLP techniques in examining social media posts, online discussions, interviews, and documents. Sentiment Analysis, topic modelling, and discourse analysis can offer scholars a better way to see how people think about things like marriage, parenthood, family roles, and interpersonal relationships. NLP is especially applicable in pluralistic society where various languages and communication styles are used. For instance, in the Israeli context, social interactions are happening in the Hebrew, the Arabic, the English and other linguistic communities, which makes it very rich, in terms of linguistic analysis, in the sense that it is possible to do such analysis with AI.

2.2.3 Big Data Analytics

Big Data Analytics is the process of acquiring and analyzing very large and complex sets of data that are too vast for conventional analytics techniques. Social media networks, online services, governmental databases, and communication networks produce vast amounts of data, especially when utilizing the digital technologies. Thanks to the use of big data in the analysis of social facts, research scholars can study social trends on a much larger scale than ever before. Large data sets are being used more and more to understand marriage and fertility rates, household structure, migration trends, and social mobility in family related studies. Such analysis can help to develop understanding of social transformations and demographic changes (Mayer-Schönberger & Cukier, 2013). Moreover, through big data analysis, it is possible to track real-time social changes. This is especially important in order to recognise new issues within local families and the effectiveness of public policies aiming at social welfare and family stability.

2.2.4 Predictive Analytics

Predictive analytics represents an amalgamation of statistical modeling, machine learning and data mining to anticipate future events and actions. Family and social studies can use predictive analytics to make projections on the needs of population groups, to predict which population groups may be at risk and to forecast potential social issues before they are common. For instance, predictive models can be used to learn about factors of divorce, family instability, youth disengagement and social isolation. The insights can then be applied by policy makers to create interventions that are preventive and specific social programs. The increasing adoption of predictive analytics, as one example, represents the shift of a research paradigm from descriptive analysis to predictive and even policy-oriented ones within the social sciences. Thus, AI technologies have begun to be used as strategic tools to help gain a better understanding and tackle complex social issues.

2.3 Family Issues and Social Relationships: Conceptual Perspectives

Family is the primary institution responsible for socialization, emotional support, and the transmission of values. Contemporary families face challenges such as marital instability, divorce, delayed marriage, declining birth rates, intergenerational conflict, work–family balance, and the impact of digital technologies on communication, affecting both individual well-being and social development (Giddens & Sutton, 2021).

Social relationships extend beyond the family to include communities and social networks. Digital communication has transformed these relationships by creating new opportunities as well as challenges related to privacy and misinformation. Family issues and social relationships can be understood through sociological perspectives such as structural functionalism, conflict theory, and symbolic interactionism, which explain family dynamics and interpersonal interactions.

2.4 Characteristics of Israeli Society and the Digital Transformation of Family Relations

Israel has a diverse population characterized by ethnic, religious, and linguistic diversity, resulting in varied patterns of family life and social interaction (Israel Central Bureau of Statistics, 2024). This diversity provides a rich context for examining family issues and social relationships from different social and cultural perspectives.

In addition, Israel is recognized as one of the world's leading countries in technological innovation and digital transformation. The widespread adoption of digital technologies and artificial intelligence has reshaped communication and social interaction, providing researchers with new opportunities to analyze family relationships and social change using digital data and computational tools (OECD, 2024). Given the central role of the family in Israeli society, understanding the contribution of AI to the study of family relations can support researchers, policymakers, and social institutions in addressing contemporary social challenges (Ram, 2018; United Nations, 2024).

3. Previous Studies

3.1 International Studies on Artificial Intelligence and Social Research

The use of Artificial Intelligence (AI) in the field of social sciences has been stressed in several international studies in recent times. Lazer et al. (2009) pointed out the importance of digital data to help us understand social behavior and social interactions and hinted at a new field of study, computational social science, which is now under development. Joyce et al. (2021) also proposed to create a sociology of artificial intelligence - one which explores the influence of AI on social structures and inequalities. Furthermore, Gerdon et al. (2022) identified several challenges associated with the societal impacts of algorithmic decision making and focused on transparency, accountability and fairness aspects of algorithmic systems. The cases above all demonstrate how AI technologies are becoming an increasingly vital means to an

understanding of social phenomena through analytical tools and offering support to evidence-based policy making.

3.2 Studies on Artificial Intelligence and Family Research

More recently, Artificial Intelligence (AI) has been found to be a tool that is being adopted in greater amounts for research in the family. Large datasets are more easily interpreted and studied, allowing a more in-depth understanding of parenting behaviors, children's growth and development, and family dynamics in the wake of AI technologies (Lee et al., 2025). Likewise, Fulmer and Zhai (2025) showed how AI could be utilized to help understanding the family context and its outcomes across the life course as well. Additionally, Erstad et al. (2024) pointed towards the impact of digital technologies on the communication and relations between/among family members. Overall, the studies demonstrate the potential for AI to revolutionize family research, with their complementary nature, while shedding light on the need for ethical and methodological considerations.

3.3 Studies on Social Relationships and Digital Communication

Studies involving analysis of internet communication have revealed a great amount of modification in social relationships and social interaction. Social connectivity is also being changed by the use of social media (Van Dijck, 2013) and communication digital environments are becoming sobered by the omnipresence of the use of AI (Kaplan and Haenlein, 2019). Similarly, Tufekci (2017) proved that there is a connection between networked communication system and social participation and collective interaction. Overall, all these studies indicate that the application of digital technologies and AI concepts must continue and be urgent in order to better understand the social relationships and communication in today's society.

3.4 Studies Related to Israeli Society

The study of Israeli society often has been focused on issues of demographic diversity, family structure and social change. There have been studies of how culture, religious and socioeconomic beliefs and

values influence social relationships and the family. The effect of digitalization on social changes in the context of Israeli society was explored by Ben-David (2020). The study results showed that the phenomenon of technological innovation has a significant impact on communication patterns, social involvement and community interactions. It is the author's summary that digital technologies are fully embedded in the social everydayness. According to some statistical reports brought by the Israel Central Bureau of Statistics (2024), the demographic structure is experiencing continued change, across several aspects: the family structure, the trends in births, the demography of households, and changes in social values. Such changes offer helpful information to researchers who would like to know how families operate in the Israeli situation. There is also prior research that emphasizes the increasing role played by digital technologies in enabling communication among and within various social collectives. Few studies have, however, specifically focused on the application of artificial intelligence technologies to the understanding of family problems and social relations in Israeli society. This difference is an important one that needs further investigation.

3.5 Research Gap

The insufficient historical research found indicates that considerable scholarly time has already been dedicated to the topics of AI and the digital communication, and family studies and social relationships. However, already published work has shown that AI technologies are effective when applied to large scale social data and the ability to extract behavioural patterns from the data. Similarly, many scholars have explored how digital-technologies affect the family and interpersonal relationships. Nevertheless, the literature lacks a clear focus on the application of artificial intelligence technologies to Israeli society in the context of family issues and interaction. Existing literature tends to either be on the topic of AI as a technology or the family without thinking about the analytical potential of AI or methodologies. In fact, very little work has taken place so far on developing an understanding of how AI technologies can be applied to studying the family related issues and social interactions in the particular circumstances of the Israeli society.

This study aims to bridge that gap by first offering a detailed theoretical analysis of the use of AI technologies for analyzing family problems and social relationships in Israeli society, and to explore the opportunities, difficulties and moral concerns that arise from the use of AI technologies.

4. Applications of Artificial Intelligence in Studying Family Issues and Social Relationships

The application of artificial intelligence technologies in the research and study of problems in family and social relationship is acquiring more and more relevance. AI systems're Hadoop's ability to process huge amounts of structured and unstructured data has increased the methodological resources open to social scientists. Surveys, interviews, observations and statistical analyses are the traditional methods of social research. These approaches are still relevant, but AI technologies also offer insights into potential patterns, trends, and the complex dynamics of social interactions, on a scale far greater than human capabilities. Though these techniques are beneficial, AI technologies present further possibilities to uncover hidden patterns, forecast future trends, and examine extensive social interaction at scale (Russell & Norvig, 2021). The integration of AI in family and social studies is a part of the wider evolution of social science studies. In the modern era, we produce vast amounts of digital information in various formats on social media, communication technologies, government databases, and online services. These tools can be used effectively by researchers with the help of AI-based methods to provide useful information about family systems, interpersonal relationships and social behaviors.

4.1 Big Data Analytics and Family Studies

Big Data Analytics has now become one of the most powerful enablers in today's social research. Big data is defined by the volume, velocity and variety of the data sets per se, and also the fact that they frequently come as too big to deal with analytically using the “old-school approach” (Mayer-Schönberger & Cukier, 2013). In recent years large data sets have been growing in popularity with the family researcher for studying demographic trends, marriage, fertility behavior, migration flows, and

household structure. The key benefits of big data analytics are that it can be used to create a complete or holistic picture of society. Big data can be used for studying a whole society or a large segment of it, as opposed to traditional sampling surveys. More comprehensive coverage allows for more reliable and accurate social analysis. In Israel, data gathered by governmental agencies carries an important message of family size and changes in families. These can be used in AI-powered analytical systems to generate relationships between the variables -- like age, education, employment, family size, and geographic location. Along with this, big data analytics plays a role in determining long-term social trends. Changes in fertility rates, marriage ages, divorce rates, and household characteristics over long time periods can be studied. In addition, when a few groups of social media are compared using big data, they can be compared with each other. The demographic data of Israeli society allows for the study of differences in family behavior between cultural, religious and socioeconomic communities with the support of AI technologies.

4.2 Machine Learning and Predictive Models

AI has become an integral part of social research powered by machine learning. Machine learning algorithms analyze existing data to extract intricate patterns between different attributes and make predictions about future events (Goodfellow et al., 2016). Predictive models have been used to explore family processes related to marital satisfaction, family conflict, and children's growth and social adjustment in family studies. The results can be provided to researchers to help them understand what patterns create positive outcomes, or the patterns responsible for negative ones, in the families of which they have experience. These models help researchers to understand factors conducive to the stability and wellbeing of families. The opportunity for early detection of social risk is another advantage offered by predictive analytics. Machine learning systems, for instance, can study the social or demographic information as well as behavioral patterns to identify population groups that could be socially isolated, economically vulnerable, or have family-related needs and challenges. Such information can help policymakers to take steps to prevent problems before they get worse. Machine learning is not just

useful for predicting what happens in the future; it can also be used to classify and identify patterns. Biologists may classify people by traits to see the behavior patterns that tend to occur in families and communities. The analytic skills are part of a deeper understanding of process in society and interpersons relationship. Predictive models, however, have benefits, scholars caution that it needs to be interpreted carefully. Algorithmic systems cannot always represent a range of culturally, emotionally and contextually influenced factors that shape human behaviour. Thus, machine learning should not replace social research techniques (conventional social research techniques) but it should be complemented (Joyce et al., 2021).

4.3 Natural Language Processing and Social Media Analysis

Natural Language Processing (NLP) has revolutionised communication and social interaction analysis by enabling researchers to analyse large volumes of text from social media, blogs, online communities, and digital communication. AI systems can identify themes and emotional trends related to family dynamics through sentiment analysis, topic modelling, and discourse analysis (Kaplan & Haenlein, 2019).

NLP has been used to examine family orientations, parenting, gender expectations, and inter-generational relationships. In Israeli society, AI can analyse multilingual content in Hebrew, Arabic, English, and other languages, allowing comparisons of social attitudes across different communities.

NLP also helps identify issues related to divorce, parenting challenges, household stress, and work–family balance, supporting social policy development. However, the use of social media data raises ethical concerns regarding informed consent, privacy, and data ownership, requiring researchers to follow appropriate ethical standards (Floridi et al., 2018).

4.4 Artificial Intelligence and Social Network Analysis

Social relationships are frequently mediated by a network of social relations connecting people, families, connections and institutions. Social

network analysis aims to describe and explain the patterns of these relationships. AI tools have greatly improved how researchers can understand intricate social networks to uncover the prominent figures, communication pathways, and community formations that drive the dynamics of social systems. Network analysis using AI can help scholars put together the network of the social spheres and calculate the strength of interactions between people. Researchers can single out social actors who are of particular influence as well as examine information transfer and social-support and co-operation patterns.

4.5 AI-Supported Policy Analysis and Family Welfare

Incorporating AI helps improve the way governments and social institutions analyze demographic and social data, thereby supporting evidence-based policymaking. AI-powered technologies aid in assessing policies, allocating resources, and long-term planning for family welfare and social development. These capacities are instrumental to decision-makers who want to pinpoint current issues and create focused actions and strategies to contribute to good social equity.

5. Opportunities, Challenges, and Ethical Considerations

AI has created new opportunities to advance scientific knowledge and enhance policy development in the field of family and social research. Meanwhile, with the growing adoption of AI technologies have emerged some of the most pertinent ethical, methodological and social issues. The knowledge of both beneficial and limiting aspects of the use of AI is necessary in this regard, to ensure that it is studied responsibly and in the right way.

5.1 Opportunities Presented by Artificial Intelligence

AI has significant potential to enhance social science research and education by enabling the rapid processing and analysis of large datasets. Unlike traditional methods, which are often limited by time, sample size, and analytical complexity, AI allows researchers to examine extensive data and identify patterns that may be difficult to detect using conventional approaches (Russell and Norvig, 2021). It also improves the

precision of analyzing social phenomena by using machine learning to uncover relationships between variables and support evidence-based decision-making, offering deeper insights into family dynamics, population changes, and social interactions. Additionally, AI promotes interdisciplinary collaboration by integrating perspectives from sociology, psychology, economics, and data science, thereby supporting more comprehensive approaches to addressing complex social issues (Joyce et al., 2021).

5.2 Privacy and Data Protection Challenges

Despite the significant benefits of AI in social research, privacy remains a major concern, especially in family studies where data often includes sensitive personal information such as relationships, finances, and behaviors. This raises important ethical issues related to confidentiality and informed consent (Floridi et al., 2018). Many AI systems rely on data collected from social media and digital platforms, which may unintentionally include personal information not intended for research use. Therefore, researchers must ensure strict compliance with ethical and legal standards. Another challenge is the risk of data breaches, as large datasets can be vulnerable to cyberattacks if not properly secured. Accordingly, strong data protection mechanisms are essential to maintain participants' privacy and public trust. Although anonymization is widely used to reduce privacy risks, complete anonymization is often difficult, especially with detailed behavioral data. This highlights the need for policies that balance innovation with privacy protection.

5.3 Algorithmic Bias and Social Inequality

Algorithmic bias is a key challenge in AI-based social research, as AI systems learn from existing data and may reproduce or amplify pre-existing social biases (Gordon et al., 2022). This can lead to distorted findings, particularly when certain groups, such as minorities, are underrepresented in datasets, resulting in inaccurate conclusions about social and family dynamics. In diverse societies such as Israel, addressing bias requires ensuring that datasets include different ethnic, cultural, religious, and socioeconomic groups to produce fair and reliable results.

Transparency in data collection and analysis is also essential to identify and reduce bias in AI systems. Moreover, interdisciplinary collaboration between sociologists, computer scientists, ethicists, and policymakers is necessary to promote fairness and improve the reliability of AI-driven research outcomes.

5.4 Transparency, Accountability, and Ethical Governance

As AI technologies become more widely used in social research, transparency, accountability, and ethical governance have become major concerns. Many AI models operate as "black boxes," making it difficult to explain how their conclusions are reached. Therefore, researchers should ensure that AI systems used in family and social studies are interpretable and supported by clear methodological procedures (Shneiderman, 2022).

Accountability is also essential, as responsibility for errors or unintended outcomes must be clearly defined. International organizations such as UNESCO (2023) and OECD (2024) emphasize principles including transparency, fairness, accountability, privacy protection, and human-centered AI. Accordingly, AI applications in family and social research should undergo ethical review to ensure compliance with legal and ethical standards and to protect research participants.

5.5 Future Challenges and Prospects

In the future, it is believed that artificial intelligence, in some way, will only become more important to the field of family or social studies research. Increased developments in machine learning, NLP and predictive analytics will further enable researchers to deepen and further analyse social phenomena in detail. But new opportunities as well will become available in the future. As AI systems become more complex, they may raise concerns with regard to explainability, fairness, accountability. As these issues will continue to change, researchers need to constantly adjust the methodological and ethical approaches and strategies to cope with them. Unfortunately another issue is that of the distribution of technology. The availability of high-level tools of artificial intelligence (AI) extends beyond institutions and countries, which might

lead to differential sizes of research capacity and scientific production. Access to technology resources will thus continue to be an important goal of the world's research community as it works towards equity. Nevertheless, AI's ability to aid in social research studies is critical and has tremendous potential. With responsible use, AI technologies can greatly help to inform understanding of family dynamics, design social policies and advance the care of social wellbeing. The biggest challenge will be technology innovation's adherence to ethics and values of human beings.

6. Conclusion and Recommendations

The use of Artificial Intelligence (AI) has become a real transformation in today's social science research. Analysis of issues in families and social relationships using the tools of machine learning, natural language processing, big data analytics and predictive modeling is unparalleled. These technologies offer unique opportunities to gain insight on a variety of demographic, interpersonal interaction and social behaviour patterns, and aid evidence-based policy-making. Through the results from this study, a few recommendations can be given:

1. Researchers should leverage AI technologies in combination with the conventional approach of social research for more comprehensive and reliable research results.
2. Policy makers, social and data scientist researchers, and ethics experts need to work together in interdisciplinary teams in academic institutions.
3. Create regulatory measures to control/regulate the power of AI and social data to make sure it is used responsibly and with privacy.
4. Future research needs to be directed towards enhancing the fairness of algorithms and minimising biases to underrepresented groups.
5. Encourage academics in educational institutions to build up their skills in AI literacy to boost methodological skills and ethical awareness of social science researchers.
6. Side by side efforts on designing more transparent and explainable AI systems that can be used for social research applications should be done.

In short, AI holds tremendous potential to further the field of family and social research. It is crucial to have a careful balance among the technological capabilities and ethics in this regard in accordance with the study of family matters and social relationships in order to be able to integrate it into the study of family issues. Researchers can therefore harness the advantage of AI technologies and ensure that core values and rights of social science inquiry are respected by taking human-centered and transparent approaches.

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