Experiences of Friendship among Autistic Adults: A Scoping Review

By Tian Wu & Duu-Chiang Wang

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Data Sources: A scoping review was conducted on publications between 2001 and 2021 in four electronic databases (PubMed, CNKI, ERIC, and Web of Science) to (a) identify the quantity, breadth, and methodological characteristics of the literature, (b) summarize and synthesize key research findings, and (c) explore knowledge gaps to guide future research.

Results: A total of 15 empirical studies were included. The results indicated that the most frequently studied components were the characteristics, understanding, effort, and practice of developing friendships among other related factors.

Conclusion: Future studies should incorporate the voice of adults with autism and focus on the dynamics and contexts of friendship experiences.

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1. Introduction

Friendship is an essential social relationship formed over the life span of almost all individuals. Friendship, which is based on interpersonal interactions, encompasses unique behaviors accompanied by a range of emotions, hopes, regrets, and wishes (Blieszner, 1992), and it transcends the boundaries of age, gender, and settings (Tesch, 1983). In the neuroethological approach, the biochemical basis of friendship is explained using behavioral, neurobiological, and molecular techniques (Brent et al., 2014). From the perspective of social psychology, friendship is regarded as a specific form of a dyadic peer relationship, which is dynamic, stable, voluntary, and reciprocal in nature (Howes, 1980). According to Hall (2012), symmetrical reciprocity, agency, enjoyment, instrumental aid, similarity, and communion are the six factors of expectation that constitute the optimal standards of friendship. As a dynamic relationship that develops within a specific period in a given environment, friendship involves a degree of mutual affection and companionship (Blieszner, 1992; Furman & Buerman, 1983; Hartup & Stevens, 2016; Newcomb & Bagwell, 1995). Therefore, the complexity of friendship experiences is reflected not only in the static structural network of friendship but also in its dynamic formation process (Rubin et al., 2007).

In the most recent revision of the diagnostic criteria of mental disorders, the umbrella term “autism spectrum disorder” was introduced, and the traditional triad was restructured into a dyad (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; American Psychiatric Association, 2013). Over the last two decades, an increase has been observed in the prevalence of autism worldwide, particularly among individuals without intellectual disability (Lai et al., 2014). A similar prevalence has been reported in adults (Brugha et al., 2011).

Friendship experiences affect not only individuals’ health, emotional well-being, social interactions, and cognitive functioning but also their families, school performance, and entire neighborhoods (Antonio, 2016; Hall, 2012). Few studies examined the experiences of friendships among young and adults with autism, even within a broad range of autism-like traits, such as the broad autism phenotype (BAP) or autism-like traits. Typically, for young individuals with disabilities, friendships and personal relationships are as an essential component for achieving a successful transition to college life and career (Mikami, 2010; Schuh et al., 2014). Nevertheless, few studies investigated the characteristics of friendships from the perspective of individuals with autism, particularly autistic adults (Forster & Pearson, 2019).

Few studies examined the characteristics of friendships among students with autism. Petrina et al. (2014) reviewed 24 studies of the nature of friendships among school-aged children with autism. They discovered major differences in the manifestation of friendships between children with autism and their neurotypical (NT) peers. In a meta-analysis, Mendelson et al. (2016) discovered that young boys with autism had fewer and lower-quality friendships than their NT peers. Therefore, they developed a process-based model of friendships to explain their findings. In a systematic review, Brady et al. (2020) examined the interventions used to teach friendship-related social skills to children and adolescents with high-functioning (HF) autism. Given that these studies only focused on school-aged children and adolescents, further research is required to investigate the experiences of friendships among different age groups on the autism spectrum, especially among young and adults.

Unlike a systematic review, which typically involves a focused approach, a scoping review tends to...
address broader topics (Harms & Goodwin, 2019). Through a systematic approach, scoping reviews examine the extent or nature of evidence on a specific topic, summarize findings, and identify gaps in the literature, thereby facilitating the mapping of evidence, theories, concepts, and sources to aid in the planning of future research (Arksey & O’Malley, 2005; Armstrong et al., 2011).

To the best of our knowledge, no systematic international review has examined the experiences of friendships among autistic adults. Given that scoping reviews are used to comprehensively map existing research, we conducted this scoping review to achieve the following goals:

(a) Identify the quantity, breadth, and methodological characteristics of the literature on the experiences of friendships among autistic adults.
(b) Summarize and synthesize key research findings, particularly regarding the characteristics of friendships from the perspective of individuals on the autism spectrum, and
(c) Explore the gaps in the literature to guide future research.

II. Methods

This scoping review was conducted in accordance with the guidance framework of Arksey and O’Malley (2005) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Moher et al., 2009; Tricco et al., 2018). Scoping reviews are typically conducted in five stages: identifying the research question; identifying relevant studies; selecting studies; charting the data; and collating, summarizing, and reporting the results (Arksey & O’Malley, 2005). In the following, we describe each of these stages in detail.

Stage 1: Identifying the Research Question

Our research question was as follows: What information does the literature provide regarding the experiences of friendships among autistic adults?

Stage 2: Identifying Relevant Studies

In this review, we conducted a systematic search to identify studies relevant to our research question. Empirical studies focusing on the experiences of friendships among autistic adults that were published in peer-reviewed journals from January 2001 to December 2021 were obtained from four electronic databases (PubMed, CNKI, ERIC, and Web of Science) and were systematically reviewed. The keywords included (autism OR Asperger’s OR autistic) AND (friendships OR friend) AND (adults OR young adults). To identify articles that may have been missed in our manual search, we also searched multiple key journals, including *Autism, Journal of Autism and Developmental Disorders*, and *Review Journal of Autism and Developmental Disorders*.

Stage 3: Selecting Studies

To identify the most recent trends in autism as a global research topic, we limited our literature search to articles in English and Chinese only and to studies conducted over the last two decades (from January 2001 to December 2021). This temporal limitation was set because of the recent increase in the prevalence of autism and the advancements in this topic during this period. The following studies were included for analysis: (a) empirical studies published in peer-reviewed journals, (b) studies on the experiences of friendships, and (c) studies on individuals aged more than 18 with autism, a BAP, or autism-like traits.

This scoping review was conducted using the systematic review method, and a post hoc study was also performed on the basis of the researchers’ increased familiarity with the literature on the experiences of friendships among autistic adults. After the removal of duplicates, the titles and abstracts of all retrieved articles were screened. Articles were selected or excluded in accordance with the inclusion and exclusion criteria. Finally, the full texts of all articles were examined to reach a final decision regarding their inclusion in this scoping review. Any discrepancies or disagreements between reviewers were resolved through discussions to reach a consensus.

Stage 4: Charting the Data

In line with the research question, the descriptive characteristics of the selected articles were extracted by the reviewers in an iterative manner, including the author name(s), year of publication, study location, study population, and study aim, methodology, and outcomes. The main findings related to the experiences of friendships among autistic adults were charted. The key items of information were collated by the reviewers in a customized data extraction sheet.

Various components of friendship experiences were identified and grouped under overarching themes. The key themes were organized into an inductive conceptual framework on the basis of discussions of synthesized results between all reviewers.

Stage 5: Collating, Summarizing, and Reporting the Results

To develop a framework for collating and summarizing the results, certain aspects of the literature were prioritized in both quantitative and qualitative analyses. The results regarding the author name(s), publication year, study location, study population, and study aim, methodology, and outcomes were summarized in a chart format (Table 1). Because of the variations observed in the outcomes and main findings between the articles, a narrative synthesis format was selected to discuss the results.
III. Results

After the exclusion of duplicates, a total of 256 articles were identified through electronic database searching and manual searching of titles in autism-related journals. After the titles and abstracts of these articles were screened against the inclusion and exclusion criteria, a total of 48 articles remained. The full texts of the remaining articles were reviewed against the same eligibility criteria. A total of 33 articles were excluded because they did not report on the experiences of friendships among autistic adults or did not involve empirical research. Finally, a total of 15 articles published between 2001 and 2021 were included in the analysis. Figure 1 shows the PRISMA flowchart of the study selection process.

Figure 1: PRISMA Flowchart of the Study Selection Process

a) General Characteristics of the Included Studies

A total of 15 studies met the inclusion criteria. Table 1 presents the general characteristics of these studies. With the exception of one study, all studies were published between 2011 and 2021, with 53.3% (8/15) of them published after 2019. As shown in Table 1, most of the studies were conducted in the United States (n = 9) and United Kingdom (n = 3), followed by Canada (n = 1), Germany (n = 1), and Poland (n = 1).

b) Participant Characteristics

Five of the included studies investigated individuals with autism only. Of these five studies, four compared autistic adults, including those with Asperger’s syndrome (AS) and HF autism, with individuals without autism. One study (DaWalt et al., 2019) compared the experiences of friendships between adolescents and adults with autism and individuals with other disabilities, such as those with fragile X syndrome. Among the two remaining studies, one focused on adults with and without a biological relative with autism (Jamil et al., 2017), and the other included a sample of NT adults and was operationalized as a dyadic mismatch of autism-like traits and friendship quality (Bolis et al., 2021). These two studies focused on the general population and investigated the relationship between autism-like traits (or BAP) and friendship.

c) Methodology

Most of the included studies (n = 9) had a quantitative research methodology. Seven studies were questionnaire-based studies, and two studies were longitudinal studies (DaWalt et al., 2019; Friedman et al., 2019). Three studies had a qualitative methodology with analysis of data from interviews and focus groups. Of these three studies, two involved phenomenological analysis, and one relied on grounded theory for analysis. Table 1 lists the characteristics of the methodologies used in all the included studies.

d) Main Findings

After the data were extracted, the full texts of all the included articles were examined. The perceptions and experiences of friendships and related factors were identified and coded into initial themes. Through discussions and collaborations, these themes were organized into an inductive conceptual framework.
describing four central components of friendships among autistic adults:

(a) Characteristics and profiles of friendships
(b) Understanding and perspectives of friendships
(c) Effort and practice of developing friendships
(d) Relationships between friendship and other factors

**Characteristics and Profiles of Friendships**

In eight studies examining the characteristics and profiles of friendships among autistic adults, varying measurable characteristics were reported, including the number of friends (particularly close or best friends), frequency of contact (phone calls, email, Facebook, instant messaging, or texting; Mazurek, 2014), and duration of friendship (e.g., length of past friendships, age at which the first friendship developed; Gallup & Serianni, 2017). All of these studies utilized the Friendship Questionnaire (FQ; Baron-Cohen & Wheelwright, 2003). Bolis et al. (2021) operationalized dyadic similarity as a dyadic mismatch of autism-like traits from individual traits to interpersonal attunement. They also associated the quality of friendships with a given dyad through the Friendship Quality (FQUA) scale (Thien et al., 2012).

In contrast to the aforementioned self-reported methods for evaluating the characteristics of friendships, Friedman et al. (2019) used the Autism Diagnostic Interview-Revised (ADI-R; Lord et al., 1994), which is based on parental reports, to evaluate friendships among autistic adults. DaWalt et al. (2019) also used the ADI-R to examine quality of life within the domain of friendships and to determine whether participants had “real friendships” in accordance with four specific criteria.

**Understanding and Perspectives of Friendships**

Researchers have examined the understanding and perspectives of friendships in individuals with autism through both qualitative (n = 6) and quantitative (n = 1) comparative research. In a quantitative study, Platos and Pisula (2021) compared gender differences in the understanding of friendships between individuals with autism and NT individuals in nonexclusive categories with six components, namely motivational (intimacy, support, and companionship) and cognitive developmental (reciprocity, unconditional responsiveness, and complexity) categories, which were coded into open-ended questions on friendship understanding.

Six qualitative studies had a phenomenological or an interpretivist methodology. In these studies, interpretative phenomenological analysis (IPA; Forster & Pearson, 2019) was conducted, and participants (five autistic adults aged between 22 and 25 years) reported three superordinate themes in their own words: “learning the formula,” “socializing,” and “taking advantage.” Gallup and Serianni (2017) conducted a phenomenological study and discovered that video games provided potential support for the development of friendships and increased successful transitions.

Different concepts and meanings of friendships were explored through naturalistic observations and semistructured interviews among heterogeneous groups (including individuals with autism and NT individuals). Rossetti (2014) provided descriptors of friendships and a broad conceptualization of reciprocity.

**Effort and Practice of Developing Friendships**

Sosnowy et al. (2019) examined how individuals with autism sought to establish friendships and how they navigated through challenges and barriers. They investigated how 20 young adults with autism developed satisfactory friendships with individuals who accepted and appreciated their social differences. They reported that although these individuals perceived adherence to social norms as both uncomfortable and confusing, they sought further opportunities to meet other individuals who shared their interests. Rossetti (2011) explored the contexts and dynamics of friendships among three groups of young adults, including students with autism and students without disabilities. They discussed the connections and potential barriers of friendships and provided examples of friendships as well as explanations of how to address the difficulties.

**Relationships between Friendship and Other Factors**

Multiple studies examined the positive outcomes associated with an increase in the quantity and quality of friendships, including low levels of loneliness, depression, and anxiety (Rossetti, 2011); increased successful transitions and postsecondary outcomes (Gallup & Serianni, 2017); and relationship closeness (Sedgewick et al., 2019).

To identify the experiences of friendships, the relationships between friendship and other factors were examined in this review. At the individual level, factors such as empathy skills (Jamil et al., 2017), vocabulary diversity and conversational language abilities (Friedman et al., 2019), gender (Baron-Cohen & Wheelwright, 2003; Sedgewick et al., 2019), and autism-like traits (Baron-Cohen & Wheelwright, 2003; DaWalt et al., 2019; Jamil et al., 2017; Platos & Pisula, 2021; Sedgewick et al., 2019) were examined. At the group or dyad level, additional factors were examined, including acceptance and interest sharing (Sosnowy et al., 2019) and other autism-like traits (Bolis et al., 2021).

**IV. Discussion**

Over the last two decades, with the increasing prevalence of autism, the number of studies on young and adult individuals with autism has increased. To the best of our knowledge, no systematic review has examined the experiences of friendships among autistic
adults. In this scoping review, we comprehensively examined the literature to identify and summarize the characteristics of and main findings for autistic adults and to explore the gaps in the literature to guide future research. Our review included only 15 articles, indicating that the currently available evidence regarding the experiences of friendships among autistic adults is limited. In the following text, we describe our findings in detail.

First, compared with their NT peers, autistic adults reported having fewer and lower-quality friendships, even for those with high BAP scores (Jamil et al., 2017). These data were primarily obtained using the FQ (Baron-Cohen & Wheelwright, 2003) and FQUA scale (Thien et al., 2012), which are self-report questionnaires. Two studies used the ADI-R, which is based on parental reports. Several studies examined the role of gender, age, and cognitive developmental differences in the style of friendships established by autistic adults (Baron-Cohen & Wheelwright, 2003; DaWalt et al., 2019; Platos & Pisula, 2021; Sedgewick et al., 2019).

Second, the experiences of friendships among autistic adults had different meanings, particularly in studies that involved phenomenological evidence. The experiences of friendships among individuals with autism were defined in their own words, thus hindering the interpretation of “real friendships” (O'Hagan & Hebron, 2017). Different dimensions and structures were reported in the friendship experiences of these individuals throughout their life span (Hartup & Stevens, 1997). In this scoping review, the friendships autistic adults were examined in terms of the characteristics during adulthood that differed from those at other ages. Data obtained from longitudinal studies were different (e.g., spending time with friends in social and recreational activities; DaWalt et al., 2019; Jamil et al., 2017).

Third, this scoping review revealed a lack of research on the context of friendships beyond the individual level. In autistic adults, friendship is associated with many aspects of life. This scoping review revealed that the majority of studies verified the relationship between individual characteristics, friendships, and well-being at the individual level. Only two studies reported additional factors, namely acceptance and interest sharing, at the group or dyad level (Sosnowy et al., 2019). In our review, we discovered that few studies focused on the context in which friendships were established, contrasting with the number of studies examining the relationship between autism-like traits (or BAP) and friendship.

Fourth, only two studies involved longitudinal data and reported differences between adolescents and adults (DaWalt et al., 2019) and between individuals with autism and matched controls (Platos & Pisula, 2021). Integrating the life span perspective when examining friendships involves not only a static structure but also a dynamic development process. To the best of our knowledge, no study has yet examined the dynamics between friendships and personal changes over time. We argue that the nature of friendships cannot be understood without a dynamic perspective. Therefore, future studies should place greater emphasis on the process of developing friendships.

V. Research Gaps and Future Directions

Given the increase in research on the experiences of friendships among autistic adults, addressing the gaps in the literature and conducting additional research based on scoping reviews are essential.

According to quantitative comparative studies, young and adults with autism have fewer and lower-quality friendships than their NT peers or even other individuals with other intellectual disabilities, such as fragile X syndrome (DaWalt et al., 2019). Many of the studies included in this scoping review utilized the FQ to evaluate the quality of friendships. Generally, the FQ is appropriate for adults with average intellectual abilities. Its score indicates the degree to which the respondent enjoys close, empathic, supportive, and caring friendships with other individuals (Baron-Cohen & Wheelwright, 2003). This questionnaire is intended for NT individuals rather than individuals with autism.

The first gap in the literature is that the voice of adults with autism has not been considered, which refers to their ability to freely express themselves, tell their stories, and make sense of their own life experiences (Smith, 2009; Virginia Eatough, 2017). With the understanding and meaning of friendship portrayed by the experiences and worldviews of individuals with autism, normative assumptions and impositions of nonautistic meanings can be deconstructed (Alase, 2017). Therefore, in the construction of friendship as a concept, the voice of the autistic community should be included, and the structure of this community should be examined before a questionnaire is constructed.

The second gap in the literature is that the related research focuses only on the context in which friendships are established. According to Sosnowy et al. (2019), young adults with autism tend to establish successful relationships with individuals who accept and appreciate their social differences and share their interests. The majority of studies included in this review focused on the nature of friendships among autistic adults and reported individual characteristics related to the quality of friendships, especially autism-like traits. Few studies examined the contexts (e.g., acceptance of NT peers, community, or university climate) of the friendships established by autistic adults. To achieve a more comprehensive interpretation, the context in which friendships are established should be carefully examined.
The third gap in the literature is the lack of information regarding the complex relationship between friendship and other real-life factors. According to Petrina et al. (2014), multiple impairments influence the social relationships established by children with autism. Compared with NT children, children with autism tend to experience greater difficulties in developing friendships and peer relationships that are appropriate for their age. Although the majority of studies focused on the interventions used to develop friendship skills, they have not addressed the major differences between the friendships that are established during childhood and adulthood. Therefore, to examine the various patterns of friendships across an individual’s life span, additional real-life factors associated with friendships should be incorporated. In future research on the nature of friendships among autistic adults, evaluation of the various aspects of friendships can expand the concept of friendship. Further research is required to examine the complex relationship between friendships and the life experiences of autistic adults.

VI. Conclusion

Establishing friendships is a challenging task for individuals with autism. In this scoping review, we comprehensively examined the literature on the experiences of friendships among autistic adults. In the past decade, multiple studies examined the friendship experiences of adults with autism. By contrast, few studies compared the friendship experiences of autistic adults and children and adolescents with autism. In this scoping review, we identified four themes of friendships among autistic adults: characteristics and profiles of friendships, understanding and perspectives of friendships, effort and practice of developing friendships, and relationships between friendship and other factors. Although our review provides valuable insights into the friendship experiences of autistic adults, several research gaps remain to be addressed. Therefore, in the construction of friendship as a concept, the voice of the autistic community should be included, the context in which friendships are established should be examined, and the complex relationships between friendship and other real-life factors should be investigated.

Data availability statement

All the data generated or analyzed in this study are included in the published article and its supplementary files.

Ethics statement

The authors declare that they have no financial or proprietary interests in any material discussed in this article. This study did not receive any external funding. No human participants or animals were involved in this study.

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