

# Implementation of Sociometry in Guidance and Counseling: A Systematic Thematic Review (2000–2023)

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## Abstract

Sociometry is a method for assessing social relationships within groups developed by Jacob L. Moreno and has long been applied in guidance and counseling. This study aims to analyze the implementation of sociometry in guidance and counseling during the period 2000–2023 through a systematic thematic review approach. Data sources came from 42 open-access primary references cited in a recent systematic literature review. The thematic analysis identified five main themes: (1) theoretical foundations and validity of sociometry; (2) the evolution of applications from individual diagnostics to systemic analysis; (3) intervention effectiveness and stability of social status; (4) practical and ethical challenges in the school context; and (5) the paradox between scientific validity and practicality of implementation. The results indicate that sociometry remains recognized as the gold standard for measuring social status, peer relationships, and classroom climate, with convergent validity confirmed through significant correlations with standard instruments such as the SSRS and CBCL ( $r = -.20$  to  $.24$ ,  $p < .01$ ). However, its implementation faces serious obstacles: high stability of rejected status (e.g., children with ADHD are more likely to be rejected even after intensive intervention), the risk of stigmatization, time and training constraints, and a gap between theoretical validity and practical adoption (only 3.64% of US schools use it for universal screening). Key gaps include the paucity of research on the fidelity-effectiveness relationship, the lack of modern psychometric validation, and the dominance of Western contexts. Recommendations include the adoption of the more accurate Garcia Bacete (GB) classification model (92.3% behavioral validity for neglected status), the use of sociometry as a triangulation tool, the development of web-based digital tools, and ethical training for counselors and teachers. This study provides conceptual and practical contributions to strengthening evidence-based counseling in Indonesia and globally.

**Keywords:** : sociometry; guidance and counseling; systematic thematic review; social assessment; validity–practicality paradox

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## INTRODUCTION

Sociometry, an assessment method developed by Jacob L. Moreno in the early 20th century to map the structure of social relationships within a group through affective preferences among members, has maintained its relevance in guidance and counseling practice over the past two decades (2000–2023), particularly as a reliable assessment instrument for adolescent social competence (Moreno, 1934; Wentzel & Looney, 2007). Its validity is not only historical but also empirical: sociometry is recognized as the gold standard in many research contexts, including in the Multimodal Treatment Study of Children with ADHD (MTA), where the mean peer acceptance score (mean liking score) correlated significantly with the Self-Control scale on the Social Skills Rating System

(SSRS),  $r = -.20$ ,  $p < .01$ , and with the Externalizing Problems score on the Child Behavior Checklist (CBCL),  $r = .24$ ,  $p < .01$  (Hoza et al., 2005).

Recommendations from the National Children's Study Social Emotional Behavioral (SEB) Workgroup even explicitly affirm that peer-report (sociometric ratings)-based methods are the most valid and reliable approach for measuring children's socioemotional health (National Children's Study SEB Workgroup, 2021). However, a paradox arises when this theoretical validity collides with the realities of implementation: the NCS team chose not to integrate sociometry into the protocol of their massive ( $N = 100,000$ ) longitudinal study due to practical considerations such as administrative complexity, highlighting a fundamental trade-off between ideal validity and operational feasibility in the field (National Children's Study SEB Workgroup, 2021). This phenomenon reflects the gap between the production of evidence-based knowledge and its transfer into professional practice—a gap that has not been fully explored in the current literature.

Several critical gaps were identified: first, the lack of modern psychometric validation; a systematic review evaluating 13 social skills instruments based on the COSMIN framework—the gold standard for psychometric validation—did not include sociometry at all, suggesting that its psychometric foundation has not been updated to meet contemporary methodological demands (Kam et al., 2015); second, the high stability of social status, particularly among rejected students, which makes individual interventions often fail; even after intensive intervention, in MTA studies, children with ADHD remained  $\sim 4$  times more likely to be rejected by their peers (Hoza et al., 2005); third, the dominance of Western contexts in the literature, with only two Indonesian-based studies out of a total of 42 references (Sukmawati & Amin, 2022; Yusuf & Nurdin, 2021), despite the fact that social structure and cultural values have a significant influence on interpersonal preference patterns (Chaiyapornpattana et al., 2022; Bar-on & Kashti, 2015).

The novelty of this review lies in the use of the validity–practicability paradox as the main analytical framework, the identification of social status stability as a key factor in intervention design, and contextual recommendations for counseling practice in Indonesia, including the adoption of the García Bacete (GB) classification model which has been shown to be more accurate (behavioral validity of 92.3% for neglected status, compared to 70.6% in the Coie & Dodge model) (García Bacete et al., 2017).

Based on a thematic analysis of 42 primary references, this study aims to: (1) analyze the theoretical basis and validity of sociometry in socioemotional assessment; (2) identify the evolution of its application from individual diagnostics to systemic analysis of classroom climate; (3) evaluate the effectiveness of sociometry-based interventions and the implications for social status stability; (4) reveal practical and ethical challenges in implementation in schools; and (5) formulate conceptual and practical recommendations for strengthening guidance and counseling services in Indonesia.

## METHOD

### Design

This study uses a systematic thematic review approach, a qualitative analysis method that aims to identify, organize, and offer insights from thematic patterns in a collection of scientific literature (Braun & Clarke, 2006). This approach was chosen because the source documents do not report numerical selection procedures (e.g., the number of records identified or full-text excluded), but rather present a synthesis based on 42 primary references (open access) published between 2000 and 2023, which include 36 scientific journal articles (85.7%), 4 institutional reports (9.5%), and 2 verified academic platform articles (4.8%).

### Data Collection and Data Analysis Procedures

The analysis procedure was conducted in three stages: first, thematic extraction, in which the entire review document was read in depth to identify units of analysis based on substantive content; second, initial coding, in which each paragraph was coded based on key concepts (e.g., validity, intervention, ethics), with citations adjusted from a numerical system to a name-year format based on URL/DOI metadata; and third, theme refinement, in which codes were grouped into main themes and subthemes based on conceptual relationships, following the principles of Braun and Clarke (2006) thematic analysis. Validity of the analysis was ensured through source triangulation of each finding supported by at least two independent references and an audit trail documenting the coding decisions. Meta-analysis was not performed due to high heterogeneity in study designs (quantitative, qualitative, mixed) and measurement parameters (acceptance scores, Hedges'  $g$  effect size, logistic regression).

## RESULTS AND DISCUSSION

### Theoretical Foundations and Validity of Sociometry in Socio-Emotional Assessment

Sociometry, as a method for assessing the structure of social relationships in groups developed by Jacob L. Moreno in the early 20th century, has maintained authoritative legitimacy in guidance and counseling research over the past two decades (Moreno, 1934). Scientific recognition of its validity is very strong: the National Children's Study (NCS) Social Emotional Behavioral (SEB) Workgroup team explicitly recommends peer-report-based methods (peer reports/sociometric ratings) as the most reliable and valid approach to measuring children's socio-emotional health, so it is often called the gold standard in many research contexts (National Children's Study SEB Workgroup, 2021). Its convergent validity has been confirmed in various studies, including the Multimodal Treatment Study of Children with ADHD (MTA), which found significant correlations between the mean liking score on the Self-Control scale of the Social Skills Rating System (SSRS) ( $r = -.20, p < .01$ ) and the Externalizing Problems score on the Child Behavior Checklist (CBCL) ( $r = .24, p < .01$ ) (Hoza et al., 2005). These findings suggest that sociometry measures aspects relevant to self-control and externalizing behavior, which are core constructs in assessing adolescent social competence. These findings are consistent with evidence that the preschool version of the SSRS reflects teachers' perceptions rather than affective peer preferences (Fantuzzo et al., 1998).

However, sociometric validity is not absolute, but rather contextual and depends on the choice of social status classification method. A comprehensive comparative study comparing three major models: the Standard Score Model (Coie & Dodge, CD), the Probability Model (Newcomb & Bukowski, NB), and the Adjusted Probability Model (García Bacete, GB) found that the GB model achieved the highest behavioral validity (92.3%) for identifying neglected students, significantly exceeding the NB (87.5%) and CD (70.6%) models (García Bacete et al., 2017). Inaccuracy of the CD model is due to its reliance on the assumption of a normal distribution that is often not met in small class samples, while the NB model is less responsive to intraclass variability due to the use of a fixed probability threshold (García Bacete et al., 2017). The practical implication is that counselors should consider class-specific characteristics such as size and distribution of nominations when selecting a classification method, as this choice directly affects diagnostic accuracy and intervention decisions.

Sociometry achieves optimal validity when integrated within a multidimensional assessment approach. Experts agree that combining sociometry with direct behavioral observations, rating scales, interview techniques, and self-reports allows for strategic triangulation to minimize bias and enhance the validity of conclusions (Wentzel & Looney, 2007). For example, in assessing social skills interventions for children on the autism spectrum (ASD), sociometry is used alongside behavioral observations and cognitive measures to obtain a holistic picture of the intervention's effectiveness (Kam et al., 2015). However, this integration is not always successful; a study of preschoolers found that sociometric data did not correlate with factors on the teacher-compiled SSRS, suggesting a mismatch between the constructs measured by sociometry and the SSRS in early childhood populations (Ladd & Proffitt, 1996). This emphasizes that instrument selection should consider the age and developmental characteristics of the subjects, as well as the cultural context in which the assessment is conducted. LeBlanc & Ritchie (2001) and Matchett et al. (2020) reinforce the finding that general psychosocial interventions tend to produce small-to-moderate effects on social outcomes when they do not explicitly target the relational structure of groups. This aligns with modern clinical assessment principles that emphasize the need to integrate relational data to complement individual behavioral measures (Frick et al., 2020).

Unfortunately, despite its widespread use in counseling practice, sociometry is underrepresented in comprehensive modern psychometric validation efforts. A systematic review evaluating 13 social skills instruments based on the COSMIN framework, the gold standard for psychometric validation, did not include sociometry at all (Kam et al., 2015). This indicates a gap in the validation literature, potentially diminishing sociometry's relevance in an era of evidence-based practice that increasingly demands transparency and accountability in psychometrics. Without an updated validation framework, sociometry risks losing its place in the professional assessment toolkit, especially amidst the rise of digital instruments with robust validity evidence.

### The Evolution of Sociometry Applications: From Individual Diagnostics to Systemic Analysis

The application of sociometry in guidance and counseling has undergone a significant transformation from an individual diagnostic function to a holistic, systemic analysis. At the individual level, sociometry remains a key tool for identifying students' social status as popular, average, neglected, rejected, or controversial, which has profound implications for emotional and behavioral well-being (Asher & McDonald, 2009). Empirical distribution in Thailand shows a distinctive pattern: 34.3% of students fall into the average category, 24% are popular, 19.1% are neglected, 15.7% are rejected, and 6.9% are controversial (Chaiyapornpattana et al., 2022). The significant proportion of students on the social margins (34.8%) underscores the urgency of this assessment

in early detection of vulnerable groups. Furthermore, rejected status is strongly correlated with mental health problems; A Spanish study found that rejected students had significantly higher scores on hyperactivity (mean = 6.47) and behavioral problems (mean = 3.00) than popular students (mean = 1.47 and 0.41, respectively) (Calvete et al., 2020). This correlation was also seen in children with ADHD, who received more “least liked” and fewer “most liked” nominations than their peers (Hoza et al., 2005). Longitudinal studies have shown that bully and victim status can be predicted from an early age through triangulation of parent, teacher, and peer reports (Natesan et al., 2018).

As an individual diagnostic tool, sociometry has evolved into a tool for uncovering intergroup dynamics invisible to subjective teacher observation. A study in Israeli high schools using the Teacher Sociometric Tool (TST) found significant peer isolation among underprivileged and immigrant students, negatively impacting their academic and social success (Bar-on & Kashti, 2015). This analysis revealed that underprivileged students experienced statistically significantly lower peer acceptance ( $p < .01$ ) than more affluent students—a finding often overlooked when relying solely on teacher assessments (Bar-on & Kashti, 2015). A case study at SMA Unggul Sigli, Indonesia, also demonstrated that combining sociometry with individual and group counseling successfully identified students with poor social interactions, who were then targeted for further intervention (Sukmawati & Amin, 2022).

The most revolutionary innovation was the use of sociometry to measure relational climate at the classroom level, not just relationships between students. Research by Chang and Wang (2010) used peer nominations to measure teacher support—a construct typically measured through parent or teacher scales—by asking students to nominate teachers with whom they perceived a “good relationship.” Findings showed that the level of normative teacher support in the classroom—that is, the median percentage of students nominating a particular teacher—significantly predicted peer acceptance ( $\beta = 1.84$ ,  $p < .001$ ) and student learning engagement ( $\beta = 2.76$ ,  $p < .001$ ), even after controlling for demographic variables (Chang & Wang, 2010). This marked a paradigmatic shift: sociometry no longer limited to mapping horizontal social networks (students-students), but also able to capture vertical dynamics (students-teachers) and their impact on the overall classroom climate.

As an evaluation tool, sociometry demonstrates high sensitivity to post-intervention changes. An intervention study in Spain using an emotionally oriented approach based on sociometry successfully increased group coherence by 10% in the experimental group compared to the control group, formed five new social triangles (vs. one in the control), and improved the social status of 12 students (García Bacete et al., 2019). The Peer Buddies program in Poland for autistic students also showed medium effects in increasing social ( $g = -0.556$ ) and emotional inclusion ( $g = -0.538$ ), as well as reducing verbal bullying ( $g = 0.610$ ) (Rawa et al., 2025). However, these improvements remained moderate, because, as explained below, social status, especially in rejected students, tends to be stable and resistant to short-term change.

### **Effectiveness of Intervention and Stability of Social Status**

A dominant finding in the literature from 2000–2023 is the high stability of social status, particularly among rejected students, which creates a fundamental challenge for the effectiveness of counseling interventions. López and Calderón's (2022) systematic review of 65 puberty intervention studies found that social status is relatively stable and difficult to change, especially in children who have already been rejected, so interventions often show only moderate effects (López & Calderón, 2022). The most striking example is the MTA study, where, despite intensive interventions (pharmacological and behavioral) successfully reducing ADHD symptoms and increasing prosocial behavior, children with ADHD were more likely to be rejected by their peers ( $p < .001$ ) compared to non-ADHD peers (Hoza et al., 2005). This phenomenon suggests that social problems are chronic and rooted in established group dynamics, not just individual deficits. LeBlanc & Ritchie (2001) and Matchett et al. (2020) reinforce the finding that general psychosocial interventions tend to produce small-to-moderate effects on social outcomes when they do not explicitly target the relational structure of the group.

This stability is explained by the theory of reciprocal determinism: social status is the result of a mutually reinforcing cycle of negative interactions: initial rejection → isolation → decline in social skills → continued rejection (Bukowski et al., 2019). In this context, brief individual interventions often fail to break this cycle. In contrast, interventions targeting overall group coherence have shown more consistent results. García Bacete et al.'s (2019) study, which involved the entire class, not just the struggling students, successfully improved coherence and significantly reduced antipathy, confirming that social change is effective when carried out at the system level, not just the individual (Bronfenbrenner, 1979).

In addition to status stability, intervention effectiveness also depends heavily on implementation fidelity, the extent to which the intervention is implemented according to protocol. However, López and Calderón's (2022)

systematic review of 7 classroom interventions found that none of the studies measured an empirical relationship between fidelity and effectiveness.outcome(López & Calderón, 2022). This gap is critical: without these data, practitioners cannot distinguish whether intervention failure is due to poor design or inconsistent implementation in the field, for example, because teachers “feel stressed, frustrated, or burned out” in the face of the demands of a dense curriculum (Herman et al., 2020).

Finally, intervention is necessarynaturecontext-specific. Bukowski et al.'s (2019) systematic review found a significant association between oral communicative competence and social status: rejected children demonstrated less responsive, less anticipatory, and less coherent communication than popular or average peers (Bukowski et al., 2019). These findings imply that general “social skills” interventions may be less effective than structured oral communication training—a recommendation that aligns with the principles of precision counseling in data-driven services.

### **Practical and Ethical Challenges in Implementation in Schools**

Implementing sociometry in school settings faces a series of practical and ethical challenges that often create a gap between theoretical potential and field practice. The main practical barriers are limited time and resources. Tight school curricula often limit the duration of interventions, as researchers in Spain experienced, where they were only able to implement the program for half a school year (García Bacete et al., 2019). Furthermore, the lack of training for teachers and counselors in administering and analyzing sociometric data poses a significant obstacle, particularly due to the complexity of the analysis, which sometimes requires in-depth statistical knowledge (Bar-on & Kashti, 2015). Other systemic barriers include the lack of adequate counseling space and limited budgets, which hinder the integration of sophisticated assessment tools into preventive programs (Yusuf & Nurdin, 2021). Furthermore, stability and peer nomination bias need to be considered as key methodological issues in interpreting sociometric data (Poulin & Dishion, 2008).

However, the most sensitive challenges are ethical, particularly the risk of stigmatization and privacy violations. When a student is identified as rejected or controversial, there is a real risk of being labeled, ridiculed, or further isolated by peers (Herman et al., 2020). Even in the context of a controlled intervention, this risk remains: a Spanish study found a positive correlation ( $r = 0.6$ ) between self-esteem and antipathy in the experimental group, suggesting that the intervention process itself can increase awareness of conflict.interpersonal(García Bacete et al., 2019). For mitigation, experts recommend communicating results collectively (e.g., “patterns of relationships in this class”) rather than individual labels, as well as using sociometry as a triangulation tool, rather than a single diagnosis (Herman et al., 2020).

Privacy issues are also crucial, as sociometric data is sensitive and can reveal personal interpersonal preferences. Regulations such as FERPA in the United States restrict data sharing with other school staff, creating a dilemma when results indicate a security risk (Herman et al., 2020). Without clear ethical guidelines on when data may be shared,shared, to whom, and in what form counselors are vulnerable to violating the principles of confidentiality or safety. A potential solution lies in digitalization. The CU Smart Sociometry application in Thailand successfully simplified administration and analysis, achieving 87.21% consistency with manual teacher assessments (Chaiyapornpattana et al., 2022). However, reliance on an outdated platform (Ubuntu 10.04) limited access to advanced features such as the Social Intensity Index, highlighting that the development of digital tools must consider technical and cultural contextualization, not simply the automation of procedures (García Bacete et al., 2019).

### **The Paradox of Validity vs. Practicality in School Screening Programs**

sociometry is a contradiction between high scientific validity and practicalityimplementationLow accuracy. On the one hand, sociometry is recognized as the gold standard by the NCS SEB Workgroup (2021) and is used in large RCTs such as the MTA (Hoza et al., 2005). On the other hand, in the practice of universal screening in US schools, only 3.64% use it, compared to 96.88% who rely on teacher nominations (Herman et al., 2020). This phenomenon reflects a fundamental trade-off: administering sociometry requires time, training, and complex logistics—costs that are difficult to afford in the everyday reality of schools, while teacher nominations are faster and more practical, despite their low sensitivity (42–61%) in detecting real social problems (Rhim et al., 2015). Organizational readiness and teachers' professional development needs are determining factors for the success of multilevel screening models (Briesch et al., 2022).

Addressing this paradox requires a hybrid approach. One strategy is to use sociometry as a tier two screening tool, using it only when teachers suspect social problems in a student, thus leveraging its high validity without the logistical burden of universal screening. Another alternative is to adopt a hybrid model such as the Student Risk Screening Scale for Internalizing and Externalizing (SRSS-IE), which includes peer nomination as a

component (Herman et al., 2020). Investment in teacher training is also crucial, not only on how to administer sociometry but also on how to communicate results ethically and responsibly (Herman et al., 2020). Ultimately, addressing this paradox requires a collaborative commitment from counselors, teachers, and school administration to find a balance between scientific reliability and operational feasibility.

## CONCLUSION

Based on a systematic thematic review of the implementation of sociometry in guidance and counseling for the period 2000–2023, a reconceptualization of sociometry as a relational diagnostic framework can be formulated. Sociometry is not merely an instrument for measuring social status, but rather a holistic approach that combines empirical validity with contextual, ethical, and systemic sensitivity so as to fully answer the five research objectives: (1) the theoretical basis and validity of sociometry are no longer understood as static entities, but rather as dynamic constructs that depend on the suitability of the classification model (for example, the García Bacete model is more valid for heterogeneous contexts); (2) the evolution of its application shows a shift from the paradigm of deficit-based individual diagnosis to strength-based systemic analysis, where sociometry functions to map not only isolation, but also the potential of support networks in the classroom; (3) the effectiveness of interventions is not assessed from changes in individual status alone, but from increasing relational coherence, a systemic indicator that is more resilient to the stability of social status; (4) practical and ethical challenges are not treated as technical obstacles, but rather as an integral part of the assessment design, thus giving rise to the principle of ethical-by-design implementation, which necessitates counselor training in collectivity-based communication of results, the use of layered confidentiality protocols, and the adaptation of digital tools that minimize bias (e.g., random name order, avoid binary labels); and (5) the validity-practicality paradox can be addressed through the integration of a tiered assessment model, where sociometry operates as an objective verification at the second level after the initial screening by the teacher, not as a substitute. The operational implication is the need to develop national guidelines for the use of sociometry in Guidance and Counseling services and digital applications that are compatible with school infrastructure. Sociometry is no longer a methodological legacy that is considered obsolete, but rather a contemporary instrument that is evidence-based, factual, culturally rooted, and oriented towards strengthening the school psychosocial ecosystem.

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