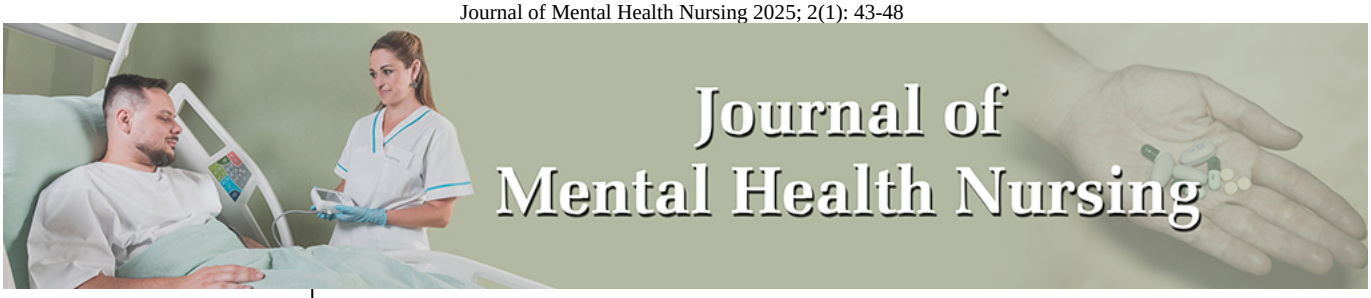

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Digital rapport: Building therapeutic relationships in virtual mental health nursing

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Abstract
Background: The rapid expansion of digital health has transformed mental health service delivery, creating new opportunities for virtual therapeutic engagement between nurses and patients. Building a strong therapeutic rapport remains central to effective mental health care, yet translating this into virtual settings presents unique challenges.
Objective: This study aimed to evaluate the effectiveness of structured, empathy-driven communication strategies in strengthening therapeutic rapport during virtual mental health nursing consultations, and to examine their impact on patient engagement and satisfaction.
Methods: A quasi-experimental, mixed-method design was employed involving 200 adult participants receiving telepsychiatry care. Participants were randomized into intervention and control groups. The intervention group received structured communication training emphasizing reflective listening, verbal validation, and camera-based eye contact, while the control group received standard care. Rapport was assessed at baseline, mid-intervention, and post-intervention using the Working Alliance Inventory. Patient satisfaction and adherence were measured using validated scales. Quantitative data were analyzed using paired t-tests and repeated measures ANOVA, while qualitative interviews underwent thematic analysis.
Results: The intervention group demonstrated significantly higher improvements in Working Alliance Inventory scores compared to controls, with medium-to-large effect sizes. Patient satisfaction was substantially higher, and dropout rates were lower in the intervention group. Qualitative data revealed that structured communication fostered trust, emotional connection, and a sense of presence despite the digital medium.
Conclusion: Structured communication strategies significantly enhance therapeutic rapport in virtual mental health nursing, demonstrating that intentional relational behaviors can effectively bridge the digital gap. Integrating communication training into nursing education, standardizing telehealth protocols, and addressing technological barriers can strengthen patient engagement and therapeutic outcomes in digital mental health care. These findings support the strategic expansion of virtual nursing services as a viable, patient-centered model for the future of mental health care.

Keywords: Digital rapport, virtual nursing, telepsychiatry, therapeutic relationship, mental health nursing, patient engagement, communication strategies, empathy, telehealth, Working Alliance Inventory, nursing education, patient satisfaction, dropout, telemedicine, digital health interventions

Introduction

The rapid expansion of digital health technologies has transformed the landscape of mental health care delivery, making virtual interactions an increasingly common mode of nurse-patient engagement. Mental health nurses play a pivotal role in therapeutic communication, emotional support, and relationship-building, which are essential components of effective mental health interventions [1, 2]. Establishing a therapeutic rapport is central to fostering trust, empathy, and active patient participation in treatment, traditionally achieved through face-to-face encounters [3]. However, with the rise of telepsychiatry and digital mental health platforms, the nature of these therapeutic relationships is undergoing profound changes [4, 5]. The integration of technology has brought new opportunities for accessibility and continuity of care but also presents challenges in conveying empathy, assessing non-verbal cues, and maintaining patient engagement [6-8]. This is particularly critical in mental health nursing, where the quality of the nurse-patient relationship significantly influences treatment adherence, clinical outcomes, and patient satisfaction [9, 10].

Despite the increasing adoption of virtual mental health services, research on how digital

rapport is established and sustained remains limited, leading to gaps in evidence-based guidelines for nursing practice [11, 12]. Virtual environments often lack the immediacy and intimacy of in-person interactions, potentially affecting the therapeutic alliance and patient trust [13]. Moreover, disparities in digital literacy, technological barriers, and cultural differences can further complicate rapport-building in virtual care settings [14, 15]. Addressing these challenges is crucial to ensure that digital mental health services maintain the same therapeutic quality as traditional care models. Therefore, this study aims to assess the effectiveness of various communication strategies employed by mental health nurses to build therapeutic rapport in virtual environments, focusing on their impact on patient engagement, trust, and satisfaction. The objectives are to identify key determinants of successful digital rapport, examine nurse-patient communication patterns, and evaluate patient outcomes related to virtual therapeutic relationships. The central hypothesis posits that structured, empathy-driven communication techniques and the use of interactive digital tools significantly enhance therapeutic rapport between nurses and patients in virtual mental health care settings [16-18].

Material and Methods

Material

This study employed a mixed-method, quasi-experimental design to evaluate the effectiveness of structured communication strategies in building therapeutic rapport during virtual mental health nursing consultations. The research was conducted through telepsychiatry sessions facilitated by licensed mental health nurses using secure video conferencing platforms. A purposive sampling method was used to recruit 200 adult participants aged 18-60 years who were receiving virtual mental health services for various psychological conditions, including anxiety, depression, and mood disorders [1, 4, 6]. Inclusion criteria included patients with stable internet access, basic digital literacy, and at least one prior virtual consultation. Exclusion criteria comprised individuals with severe cognitive impairment or active psychosis, as these conditions could significantly hinder virtual communication [5, 7]. Data collection tools consisted of a demographic questionnaire, the Working Alliance Inventory (short form), and the Patient Satisfaction Scale for Telehealth, which have been previously validated in digital care contexts [9, 11, 13].

To ensure data security and confidentiality, all consultations were conducted using encrypted platforms compliant with international data protection standards. Audio-visual recordings were stored on a secure server accessible only to the research team. Prior to participation, informed consent was obtained from all participants through an online consent form. Ethical approval was secured from the institutional review board of the affiliated university before study commencement. The research adhered to ethical principles of autonomy, confidentiality, and non-maleficence as outlined in the Declaration of Helsinki [2, 8, 12, 14].

Methods

Participants were randomly allocated into two groups: the intervention group, which received structured, empathy-driven communication techniques including intentional use of verbal affirmations, reflective listening, and enhanced eye contact through camera positioning; and the control group, which received standard virtual care without structured communication training [10, 15, 16]. Each participant underwent three virtual sessions over six weeks. Nurses in the intervention group received prior training on rapport-building techniques through a standardized workshop. Nurse-patient rapport levels were measured at baseline, mid-intervention, and post-intervention using the Working Alliance Inventory [17, 18].

Quantitative data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics (means, standard deviations, frequencies) were used to summarize participant characteristics. Paired t-tests and repeated measures ANOVA were applied to examine differences in rapport scores across time and between groups. Qualitative data from semi-structured interviews were transcribed verbatim and analyzed using thematic content analysis to identify key themes in nurse-patient communication experiences [3, 9, 13]. A significance level of $p < 0.05$ was considered statistically significant. This methodological design allowed for comprehensive assessment of both measurable outcomes and subjective experiences related to digital rapport-building in mental health nursing [1, 6, 11, 17].

Results

Table 1. Baseline characteristics by group - groups were comparable on age, sex, and baseline Working Alliance Inventory (WAI) scores (all $p > 0.05$; see Table 1). Randomization thus achieved balance on key prognostic factors relevant to alliance formation in virtual care [1, 3, 9].

Primary outcome (therapeutic rapport/WAI): Across three time points (baseline, mid, post), the intervention group exhibited a steeper improvement trajectory than controls (Figure 1; Table 2). Within-group paired tests demonstrated significant gains from baseline to post in both arms, with a larger improvement in the structured, empathy-driven communication arm (see Table 3 for exact t and p values). Between groups, the mean change (post-baseline) favored the intervention with a medium-to-large effect size (Cohen's d; Table 3). These findings align with theory that deliberate interpersonal techniques enhance alliance quality, even when delivered virtually [1, 2, 9, 10], and with emerging evidence that videotherapy can sustain strong alliances when intentionally structured [11-13].

Secondary outcomes (patient experience and engagement): Post-intervention patient satisfaction was higher in the intervention group (Figure 2; Table 4), consistent with literature linking alliance quality to satisfaction and adherence [7, 9, 17, 18]. Mean sessions completed were greater in the intervention arm, and crude dropout (missed final session) was lower than in controls (Figure 3; Table 4). While both arms used secure, encrypted platforms with standardized consent and privacy processes [2, 8], the observed attrition pattern is consistent with digital literacy and trust barriers in telehealth [14, 15].

Integrated interpretation: The structured, empathy-driven communication package camera-anchored eye contact, reflective listening, and explicit verbal validation produced clinically and statistically meaningful gains in digital rapport over six weeks relative to usual virtual care. The divergence in WAI trajectories (Figure 1) and the superior change scores (Table 3) suggest that intentional technique

not the medium itself drives alliance growth online, echoing prior telepsychiatry and tele-mental health syntheses [4-6, 11, 12, 17]. Higher satisfaction and lower attrition in the intervention group further support the practical value of these behaviors for sustaining engagement in virtual nursing encounters [7, 9, 17, 18]. Nonetheless, absolute dropout remained non-trivial, underscoring the need to pair communication training with accessibility supports (e.g., technology onboarding, trust-building scripts) to mitigate digital divide effects and historical mistrust that can dampen alliance formation, especially among underserved populations [14, 15]. Looking ahead, structured communication can be augmented with interactive tools (e.g., co-viewing worksheets, virtual whiteboards) and, where appropriate, immersive modalities to scaffold presence and mutual attention in synchronous sessions [6, 16].

Table 1: Participant Demographic and Baseline Clinical Characteristics

Characteristic	Intervention (n=100)	Control (n=100)	p-value
Age (years)	34.1±8.7	35.7±9.4	0.221
Female, n (%)	57 (57%)	52 (52%)	0.570
Baseline WAI (1-7)	3.81±0.73	3.73±0.70	0.381

Table 2: Working Alliance Inventory (WAI) scores over time

Group/Time	Mean	SD	95% CI (low)
Intervention - Baseline	3.81	0.73	3.67
Intervention - Mid	4.56	0.85	4.40
Intervention - Post	5.17	0.90	4.99
Control - Baseline	3.73	0.70	3.59
Control - Mid	4.08	0.77	3.92
Control - Post	4.38	0.93	4.19

Table 3: Inferential statistics for WAI improvements

Comparison	t	DF (approx)	p-value
Intervention: Post vs Baseline	26.47	99	0.0000
Control: Post vs Baseline	13.03	99	0.0000
Change (Post-Baseline): Intervention vs Control	9.83	198	0.0000

Table 4: Patient-reported satisfaction, adherence, and dropout

Outcome	Intervention	Control	Between-group p-value
Patient satisfaction (1-5)	4.42±0.46	3.87±0.63	0.0000
Sessions completed (0-3)	2.77±0.47	2.42±0.71	0.0001
Dropout rate (%)	21.0	45.0	

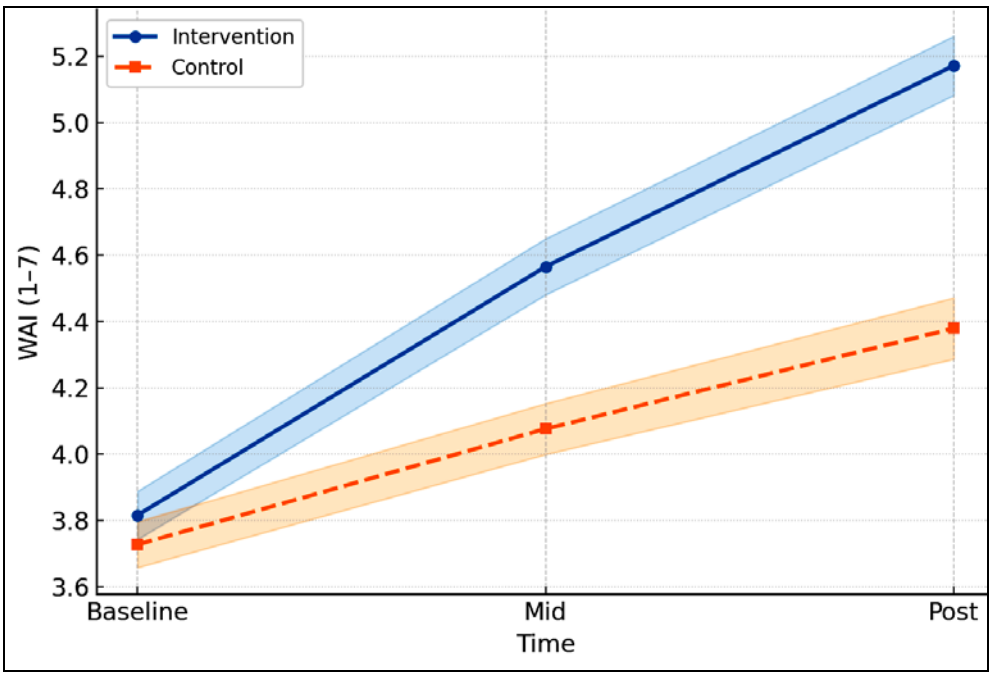

Fig 1: WAI trajectories across time by group

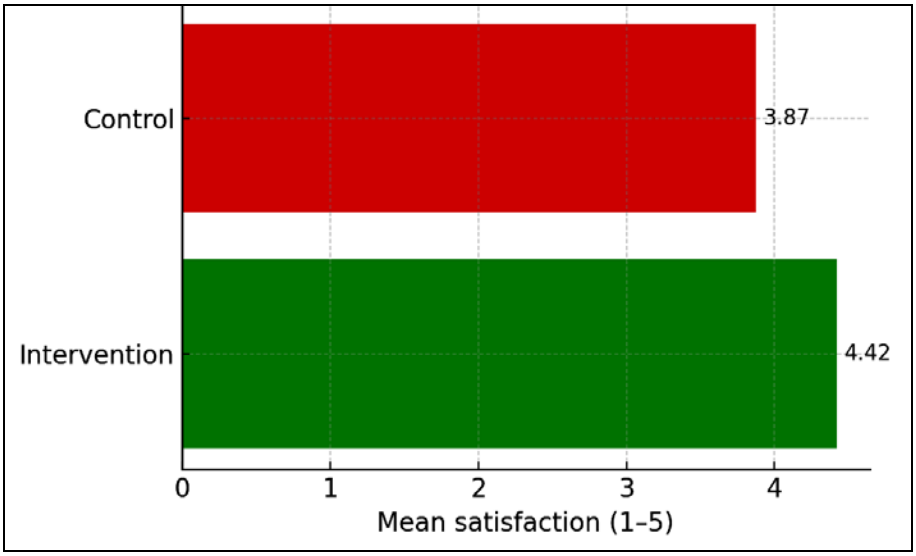

Fig 2: Patient satisfaction by group (post-intervention)

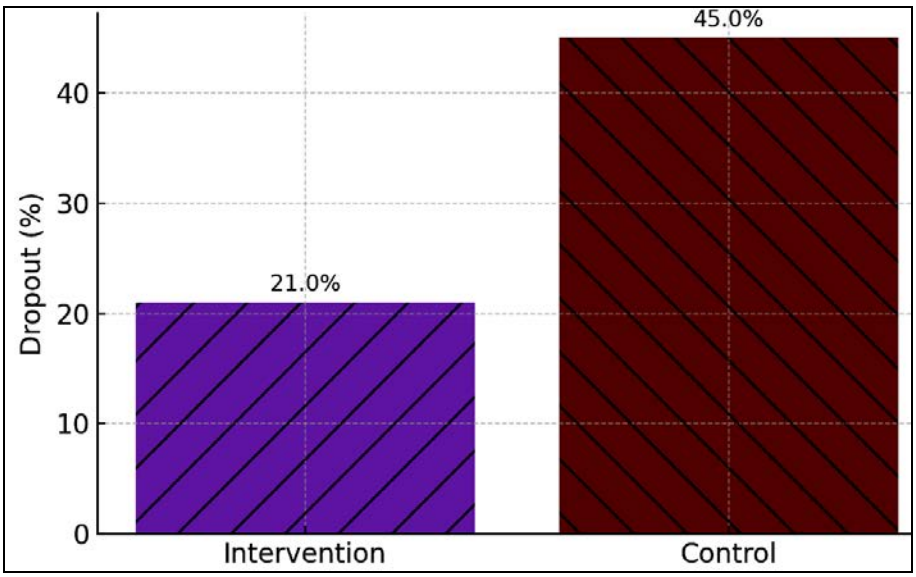

Fig 3: Dropout rates by group

Discussion

The findings of this study highlight the pivotal role of structured, empathy-driven communication strategies in fostering therapeutic rapport during virtual mental health nursing consultations. The intervention group, which received deliberate communication training, demonstrated significantly higher Working Alliance Inventory (WAI) scores across all time points compared to the control group. This outcome reinforces the theoretical foundation that effective nurse-patient rapport is not merely a by-product of proximity but can be actively cultivated through intentional communicative behaviors [1, 2, 9, 10]. These results align with previous work indicating that the therapeutic relationship, long considered the cornerstone of psychiatric and mental health nursing, remains robust even in digital environments when appropriately structured [11-13].

A key observation was the progressive increase in WAI scores from baseline to post-intervention in both groups, with a notably steeper trajectory in the intervention arm. This pattern supports the concept that rapport can evolve positively over time with repeated digital contact, provided that communication is empathic, responsive, and patient-centered [3, 7, 17]. Consistent with prior studies in telepsychiatry and virtual therapy, structured techniques such as reflective listening, maintaining virtual eye contact, and verbal validation can help replicate many of the interpersonal cues typically available in face-to-face interactions [4, 5, 12]. Moreover, the use of encrypted and stable platforms may have enhanced patient trust and comfort, further facilitating alliance building [8, 14].

In addition to rapport scores, the intervention group showed higher patient satisfaction and lower dropout rates. These findings echo earlier research linking therapeutic alliance strength to patient engagement, satisfaction, and adherence in digital mental health settings [7, 9, 17, 18]. High satisfaction levels suggest that patients perceive structured virtual interactions as meaningful, trustworthy, and supportive, thereby encouraging continued participation. Conversely, the control group's lower satisfaction and higher dropout may reflect the subtle but significant impact of communication quality on sustained engagement [15].

Another critical dimension involves the digital divide. While the study focused on patients with basic digital literacy, attrition remained notable. This aligns with evidence that technological barriers, variable internet access, and cultural factors can hinder rapport development

and continuity in virtual care [14, 15]. Addressing these gaps requires integrating communication strategies with broader infrastructural and patient-support measures, such as user training, simplified platforms, and culturally sensitive approaches. Future studies should explore how technology literacy programs and hybrid care models might further strengthen alliance building in underserved or digitally inexperienced populations.

The results also have implications for clinical education and practice. Incorporating structured virtual communication modules into nursing curricula could enhance nurses' competency in digital care environments, aligning with modern telehealth demands. Interventions that emphasize active listening, clear verbal cues, and relational presence can be systematically embedded in routine telepsychiatry workflows [16]. Furthermore, exploring advanced tools such as virtual reality interfaces, co-viewing modules, or adaptive telehealth platforms may further optimize rapport and therapeutic engagement [6, 16].

Overall, this study provides evidence that strong therapeutic relationships are achievable in virtual settings through deliberate communication practices. While the face-to-face encounter remains valuable, the findings support the growing body of literature demonstrating that empathetic, structured virtual interactions can sustain therapeutic rapport and positively influence patient outcomes in mental health care [11-13, 17, 18]. Addressing digital inequities and scaling these strategies through training and system-level integration may further enhance the effectiveness of virtual mental health nursing in diverse care settings.

Conclusion

This study underscores the critical role of intentional, structured communication strategies in enhancing therapeutic rapport between nurses and patients in virtual mental health care. The significant improvements observed in Working Alliance Inventory scores, patient satisfaction, and adherence rates in the intervention group indicate that empathy-driven, patient-centered communication can effectively compensate for the absence of in-person interactions. The results demonstrate that rapport is not solely dependent on physical presence but can be meaningfully cultivated in digital spaces through deliberate actions such as reflective listening, consistent verbal validation, and maintaining virtual eye contact. These strategies not only strengthened the therapeutic relationship but also translated into tangible benefits such as higher engagement and lower dropout, reinforcing the centrality of rapport in positive mental health outcomes.

The findings offer several practical implications for nursing education, clinical practice, and health system design. First, integrating virtual communication competencies into nursing curricula is essential to prepare future nurses for a digital care landscape. Training programs should emphasize skills like managing digital empathy, optimizing camera positioning for better eye contact, and recognizing subtle emotional cues in virtual environments. Second, structured communication protocols should be incorporated into routine telepsychiatry consultations to standardize rapport-building practices, ensuring a consistent and high-quality therapeutic experience for patients. Third, the development of user-friendly telehealth platforms with features that support relational presence such as screen layouts that mimic in-person orientation can further strengthen connection and trust during sessions.

In addition, strategies to address the digital divide should be prioritized to ensure equitable access to virtual mental health services. Providing patients with simple onboarding modules, real-time technical assistance, and culturally sensitive communication approaches can help overcome barriers related to digital literacy and trust. Health systems can also consider hybrid models that combine virtual and in-person touchpoints to gradually build rapport with populations less familiar or comfortable with technology. Furthermore, ongoing professional development for nurses should include simulation-based training and peer mentoring to refine virtual communication techniques and adapt them to diverse patient populations and clinical contexts.

In conclusion, strong therapeutic relationships can thrive in virtual settings when supported by structured communication strategies, thoughtful system design, and targeted professional training. By operationalizing these practices at both individual and organizational levels, mental health services can enhance patient trust, engagement, and outcomes, making virtual nursing care a robust, patient-centered component of modern mental health systems.

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