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ORIGINAL PAPER

The Feasibility and the Therapeutic Process Factors of Online vs. Face-to-Face Multifamily Therapy for Adults with High-Functioning Autism Spectrum Disorder in Hong Kong: A Multi-Method Study

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Abstract
The need to expand knowledge of family-based intervention for people with ASD has been observed. However, there is a lack of study in Chinese context such as Hong Kong exploring the use of multifamily therapy (MFT) for adults with ASD. The primary aim of the present study is to assess the feasibility of a process-oriented MFT in promoting family relationships for young adults with high functioning-ASD (HF-ASD) and their parents. We also sought to explore the therapeutic process factors of MFT that were deemed helpful by the family participants in our study. Two types of MFT—one online, the other face-to-face—were conducted from March to August 2021 for families with adults with HF-ASD in Hong Kong. In total, 13 families participated in our multi-method study. Among the results, cross-family therapeutic alliance and treatment engagement were positively associated with enhanced family relationships among participants. Significant differences emerged in changes in the cross-family therapeutic alliance and family relationships between the online and face-to-face MFTs. Two themes regarding the helpful aspects of MFT emerged: first, having a cross-family interactional context and, second, the authentic engagement of people with HF-ASD. Overall, our results imply that MFT, in either online or face-to-face mode, could be a feasible family group psychotherapy for adults with HF-ASD and their parents.

Keywords Multifamily therapy · Autism spectrum disorder · Treatment engagement · Therapeutic alliance · Online family group psychotherapy

Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by impairments in social communication, with repetitive patterns of behavior, interests, and/or activities (American Psychiatric Association, 2013). There is a subgroup of adults with ASD often being termed as high functioning ASD (HF-ASD), who have normal or above average intellectual abilities and have the capacity to use language in a superficially normal way (Tebartz van Elst et al., 2013). The prevalence of adults with HF-ASD has been reported to fall between 0.7% and 1.9% (White et al., 2011), and approximately half of all adults with autism develop lifelong psychiatric disorders, including anxiety and depression (Hofvander et al., 2009).

The Sociocultural Impact on Chinese Families of Children with ASD

For adults with HF-ASD, assistance from their family members can help with maintaining a fair degree of psychosocial functioning (Kamio et al., 2013). However, in a Chinese cultural context, values that emphasize familial obligation may greatly reduce the help-seeking behaviors of parents raising their autistic children and thereby increase their burden of care and parenting stress (Lin, 2014). In Chinese societies, there is a cultural expectation for the parents to be responsible for child-rearing, such that the parents are expected to

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raise their autistic child to the best of their ability in spite of the difficulties that are being encountered (Huang & Zhou, 2022). Chinese parents tend to sacrifice their own good and adjust themselves for the sake of the best of their autistic children (Huang & Zhou, 2022). Social lives of Chinese families of children with ASD are therefore often adversely affected due to the highly demanding parenting duties, thus hampering the family's overall quality of life (Wang et al., 2011).

In addition, stigmatization of autism in Chinese societies also reduces the social support network for families with a child with ASD, which could impact family relationships (Ma et al., 2020). In China, parents of children with ASD have been found to suffer from a higher level of social stigma and to self-isolate more than their Western counterparts (Zheng & Zheng, 2015). A recent meta-analysis reported that Asian parents were often blamed for poor parenting due to their autistic children's socially inappropriate behaviors, and many of them faced rejection from extended family members for having a child with ASD (Shorey et al., 2020). Chinese parents tend to cope with these rejections by social withdrawal in order to maintain face (Lai et al., 2015). Internalized stigma was prevalent in these parents, and this internalized stigma was found to mediate the associations between family functioning and parental depression (Zhou et al., 2018), suggesting the importance of devising a family-based intervention to help reduce social isolation, promote self-understanding, and enhance family relationships for Chinese families of individuals with ASD.

Impacts of the Pandemic on Chinese Families of Children with ASD

In China, the COVID-19 pandemic and the various lockdowns have affected the mental health of families with members with ASD (Huang et al., 2021). Given the heightened psychological distress found among adults dealing with ASD during the pandemic due to the discontinuation of support and the rise in social rejection (Mosquera et al., 2021), it is no surprise that the family relationships of adults with ASD in China have been strained amid such high stress.

The need to expand knowledge of clinical services grounded in a family systems approach for people with ASD has been observed since well before the dawn of the pandemic (Cridland et al., 2014). In our study, we therefore investigated an initiative using a process-oriented multifamily therapy (MFT) to work with families of adults with HF-ASD in Hong Kong, in which the adults with HF-ASD participated in our MFT with their parents. Our primary aim was to explore the feasibility of adopting a family group psychotherapy with Hong Kong Chinese adults with HF-ASD and their parents in two treatment delivery formats—face-to-face and online—during the pandemic. We also sought to explore the potential therapeutic process factors of MFT that might be deemed helpful by the families participating in our study.

Family Psychotherapy for Individuals with ASD

Most psychosocial interventions in aid of the ASD population, in view of their impairments in social communication and the need for predictability, take the form of psychoeducation and social skills training (Chorpita & Daleiden, 2009). Recently, greater attention has been paid to the bidirectional association between family accommodations and mental health conditions of people with ASD (Feldman et al., 2019), suggesting a need for family systems intervention.

Multifamily Therapy for Families of Adults with HF-ASD

Multifamily therapy (MFT) is a family-based intervention that has received increased attention in Chinese contexts in the past decade (Ma et al., 2018). As a systemic approach, MFT adopts 'an interactional framework that counteracts the potential for overemphasizing individual blame', such that the 'problematic behavior' of an individual was conceptualized in the context of relationships existing in different systems and sub-systems of which the person and the family are part (Asen, Dawson & McHugh, 2001; p.2). MFT remains distinct from other group psychotherapy methods in that they facilitate changes in families by creating an experience of communality, affording opportunities for participants to learn from each other's strengths, generating multiple possibilities, and mobilizing multiple resources (Lemmens et al., 2009).

The MFT models across the world share some common treatment goals, such as reducing stigma, expanding the family's social-support network, relieving caregiver stress, and strengthening family support for the persons with mental illnesses (Asen & Scholz, 2010). For the sake of providing a general picture of MFT model in this article, we generally divided the MFT models into two types, of which one is process oriented and the other one is psychoeducation oriented. However, one should note that there are no clear lines between the process and psychoeducation MFT models. Instead, most of the MFT models are an integration of the two (e.g., the Maudsley MFT model, Simic et al., 2021).

Process-oriented MFT, marked by the integration of family therapy and group therapy (Asen et al., 2001), emphasizes spontaneous observational learning, direct exchange, and mutual support among family members. The therapeutic processes in a process-oriented MFT are facilitated by intensifying interactions and experiential learning between

the family members, from which self-understanding of the individuals can be strengthened and new insights into the 'problems' faced by the families can be stimulated (Asen & Scholz, 2010). Process-oriented MFT emphasizes that all responsibilities for taking care of the member with mental illness rests with their family members. The MFT therapists attempt to decentralize themselves in the therapeutic process and encourage the families to help each other.

Unlike the process-oriented MFTs, the psychoeducational model is developed using a family psychoeducation framework that combines education about the biology of mental illness, crisis management, effective family communication strategies, family support, and training in problem-solving (McFarlane, 2002). The group process within a psychoeducational approach is guided by a structured problem-solving format and the families can learn to cope with the challenges of the mental illness. While there is a strong evidence base that psychoeducational MFT can reduce symptom relapses for individuals with mental illness (McFarlane, 2002), its impact on decreasing negative family interactions has been inconclusive (Fristad et al., 2003).

The application of MFT for families with individuals with ASD has received little attention in the literature. To our knowledge, the only MFT intervention developed for families of adults with ASD, known as "Working Together", adopted a psychoeducational framework to guide its design and primarily aimed at improving the outcomes for the adults with ASD, such as increasing the work engagement of the adults with ASD (Smith DaWalt et al., 2021). Even so, this model adopts a parallel group design such that the autistic adults and their parents join the MFT *separately* to discuss some specific topics. Though the parents receive training on taking a facilitating role to support their adult child, there is no room in this MFT model for the adults with ASD and their parents to exchange their views explicitly on their daily challenges nor to practice new ways of developing family interactions in the MFT.

Given family therapy's promising effects on families of adults with HF-ASD in Hong Kong (Ma et al., 2020), we believe that a process-oriented MFT could definitely benefit family relationships within the population. Further investigations of the unique therapeutic factors of MFT for specific clients (Gelin et al., 2018) and MFT's application in an online setting (Lo et al., 2022) are therefore warranted.

Factors of MFT Processes for People with ASD

A recent review of mental health interventions for people with ASD has revealed common factors of such treatment processes, including treatment engagement, therapeutic alliance, and treatment satisfaction, which might contribute to positive therapy-induced changes experienced by persons with ASD (Albaum et al., 2022).

Treatment Engagement

MFT has been characterized as an effective treatment modality for engaging clients with mental illness (e.g., Gopalan et al., 2011). MFT's nonstigmatizing group setting and its emphasis on participants' ability to build mutually supportive relationships are considered to be essential factors contributing to effective engagement with families (Gopalan et al., 2011). However, autistic individuals were found to be two to three times more likely to drop out of psychotherapy than individuals with other mental health diagnoses (Malhotra et al., 2004). While we may easily attribute the treatment disengagement to the client's characteristics, such as impairments in social communication, a previous study pinpointed that the key perceived barriers to psychological treatment were the therapist's lack of knowledge of autism and the therapist's inability or unwillingness to tailor the treatment to support the needs of those on the autism spectrum (Adams & Young, 2021). These barriers suggest that understanding the autistic individuals' worldview and addressing their psychological needs by accommodating the treatment content within the MFT could lead to successful involvement for treating autistic individuals.

Such treatment engagement for people with ASD has usually been measured in terms of their attendance of treatment, completion of homework, and in-session involvement as rated by the therapist. It has been suggested, however, that a greater understanding of the engagement process (Albaum et al., 2022) and the facilitating factors leading to treatment involvement (Adams & Young, 2021) as experienced by people with ASD is needed.

Therapeutic Alliance

Therapeutic alliance, or the collaborative relationship between client and therapist, has been identified as a common factor in individual psychotherapy and single-family therapy (Thompson et al., 2007), and as predictive of better treatment outcomes of adult psychotherapy for the non-ASD population (Flückiger et al., 2018). However, research into therapeutic alliance with autistic individuals remains sparse and mostly focuses on children (e.g., Kerns et al., 2018). One study examined the alliance outcome relation in a mindfulness-based treatment for autistic adults and suggested that a stronger alliance predicts an improved depressive mood in autistic adults at a post-treatment stage (Brewe et al., 2021). This finding suggests that the alliance should be explored as an important component in a treatment process for adults with ASD, thus mirroring the non-ASD literature.

The study also found that the ASD symptom severity and the depression symptoms of autistic adults were negatively associated with the alliance formation (Brewe et al., 2021). Hence, adults with high-functioning ASD may be less affected by the ASD core symptoms in developing collaborative relationships with others in a group psychotherapy than those at the low-functioning end. Apart from the client characteristics, the therapist's acceptance of the client is another crucial factor determining the strength of alliance formation and the degree to which individuals with ASD feel supported and safe enough to reveal their inner worlds during therapy (Stoddart, 1999).

Despite the significant role that a therapeutic alliance can play in different psychotherapy approaches, the extant research on the alliance in MFT is scant. Gelin and her colleagues (2015) proposed that the therapeutic alliance in MFT can be conceptualized at three levels: the therapist–family alliance, the cross-family alliance, and the intrafamilial alliance. Among them, the cross-family alliance, characterized by group cohesion and communality, has been treated as the unique process-related factor distinguishing MFT from other treatment modalities, chiefly due to its central role in promoting group dynamics and generating multiple perspectives on the presenting problems of the family (Gelin et al., 2015). There is a lack of definition of cross-family alliance in exiting literature. Building on the three-component framework of therapeutic alliance proposed by Bordin (1979), a cross-family alliance in an MFT is defined in our study as *the collaborative relationship between the participating families, such that their active participation, their affective bonding with one another and their agreement on the same treatment goal determine the strength and quality of this collaborative relationship*. Such a cross-family alliance in MFT stimulates social exchange between families, which may help families of people with ASD in China by reducing the influence of parenting stress (Lu et al., 2018) and promoting parental self-efficacy and the family's quality of life (Feng et al., 2022). Research on the specific contributions of a cross-familial alliance to changes in MFT is therefore critical (Cook-Darzens et al., 2018).

Treatment Satisfaction

Treatment satisfaction, generally defined as the perceived helpfulness of an intervention and one's enjoyment in said intervention, is a commonly studied factor of psychosocial treatments for individuals with ASD, one often used to indicate an intervention's acceptability (Albaum et al., 2022).

The quality of the relationship with the therapist was found to be the strongest predictor of the overall satisfaction in psychotherapy for adults with ASD, similar to those with other mental health diagnoses such as depression (Lipinski et al., 2019). Despite their difficulties in self-expression and communicating their own thoughts and emotions, adults with autistic conditions self-reported to have a strong desire for engaging in meaningful social interactions (Strunz et al., 2016), and a positive social interaction is found to be associated with increased life satisfaction of these individuals (Schmidt et al., 2015). A previous study showed that positive social experience, such as social acceptance, has a positive impact on the self-concept of people with autism (Weiss et al., 2003). Successful social experiences within a psychotherapy intervention may therefore create a healthy and experience-rich interpersonal context that improves the self-understanding of the autistic individual (Huang et al., 2017).

The MFT literature has reported a high level of treatment satisfaction across families of members with psychiatric (Gelin et al., 2018) and nonpsychiatric conditions (Cook-Darzens et al., 2018). Although Smith DaWalt et al. (2021) developed MFT for adults with ASD, they did not examine users' satisfaction with the intervention. The unknown acceptability of MFT among families of adults with ASD thus warrants investigation.

Online Family Psychotherapy

Although online psychotherapy for families has received increased attention due to its cost-effectiveness (Collie et al., 2002), studies have also demonstrated that conversations in online settings do not achieve a significantly different emotional understanding compared with what face-to-face conversations achieve (Mallen et al., 2003). Added to that, no significant difference was found in the development of therapeutic alliances in online versus face-to-face psychotherapy (Simpson & Reid, 2014).

Despite the growing trend of utilizing technology in psychotherapy, most of the discussion has focused on online psychotherapy for individuals, with limited study focused on online psychotherapy for families. A recent meta-narrative review additionally revealed that online family psychotherapy is associated with good user satisfaction and affords treatment outcomes similar to those of face-to-face psychotherapy (Helps & Le Coyte Grinney, 2021). While most of the therapists recognized the unique benefit of online psychotherapy in connecting family members who are physically separated from one another (McCoy, Hjelmstad, & Stinson, 2013), how the added complexity of managing multiple participants at a distance impacts the family therapy process is also a concern. Wrape and McGinn (2019) have recommended strategies to address some practical concerns to translate face-to-face family therapy to an online setting. For instance, when escalation occurred during the online session where physical blockage of problematic interactions

by the therapist is not possible, the therapist is advised to address this distraction collaboratively by opening a problem-solving discussion with the family members (Wrape & McGinn, 2019). The process of joining individual family members may also be impeded in an online session, which could affect the alliance formation. In this case, the therapist is advised to schedule an in-office visit at the initial stage of family therapy and solicit more verbal feedback regularly in the online session in order to understand the in-session experience of family participants (Wrape & McGinn, 2019).

Present Study

We sought to answer three research questions in the present study:

RQ1: To what extent are treatment engagement, cross-family therapeutic alliance, and treatment satisfaction in MFT positively associated with enhanced family relationships and increased self-understanding among adults with HF-ASD and their parents?

RQ2: To what extent do participants' experiences differ between online and face-to-face MFTs in terms of treatment engagement, cross-family therapeutic alliance, and treatment satisfaction?

RQ3: From the perspective of participating family members, what are the perceived helpful experiences in the treatment process of MFT? Are there any differences in the helpful experience between online and face-to-face MFTs?

In relation to those questions, we hypothesized that the three factors in the examined MFT would be positively associated with enhanced family relationships and self-understanding for adults with HF-ASD and their parents. We also hypothesized that there would be no difference between MFT conducted online and that conducted face-to-face.

Method

Participants

All participating families were referred by a local nongovernmental organization that provides services to young adults with HF-ASD. As for the inclusion criteria, (1) the family had to have at least one adult child diagnosed with HF-ASD, and (2) the family had to speak Cantonese or Putonghua. In total, 13 families were recruited, including 14 adults with HF-ASD (3 women and 11 men, mean age = 23.14), 10 fathers (mean age = 59.7), and 12 mothers (mean age = 53.9). By level of education, 64.3% of the adults with HF-ASD and 54.5% of the parents had attained an undergraduate degree or more. Eight of the 14 (57.1%) adults with HF-ASD had a comorbid mental health problem (i.e., depression, social anxiety, or ADHD).

The Multifamily Therapy in this Study

The MFT in our study was modified from Ma et al.'s (2018) model, which was developed for Chinese families of children with attention-deficit/hyperactivity disorder (ADHD) (Ma et al., 2018). Ma et al.'s (2018) model was built on a theoretical basis that integrate family systems theory, developmental theory, and group theory and it adopted a process-oriented approach in treatment design. Their model has been adapted to different populations in Chinese contexts, such as families of parents with depression (Ma et al., 2021) and families of adolescents with intellectual disabilities (Lo et al., 2022).

The MFT in our study aimed to achieve four outcomes: (a) a strength-based self-understanding among adults with HF-ASD and their family members, (b) enhanced family relationships, (c) quality family time, and (d) mutual support between families. To these ends, the principles of designing the MFT program were fivefold: (1) customizing the program to address the psychosocial needs of families of adults with HF-ASD, (2) being strength-based, (3) preventing the sensory overload of adults with HF-ASD during therapy, (4) developing secure therapeutic alliances with adults with HF-ASD by pairing each adult with a peer mentor and conducting therapy at a slow pace (Ma et al., 2020), and (5) facilitating the self-expression of adults with HF-ASD during therapy. These principles of designing the MFT program were developed by the clinical team of the study, which comprised the first author (an experienced MFT therapist), the second author (a family therapy supervisor and an experienced MFT therapist), the third author (a clinical psychologist and an expert on HF-ASD), and two social workers experienced in working with adults with HF-ASD. Meetings after every intervention session were held between the clinical team members to exchange observations of the therapeutic processes and to develop session plans tailored to address the needs of the participating families.

Each participating family received 38 intervention hours in a three-month period, including a two-hour psychoeducation talk and an individual family interview session, four full-day intensive programs hosted at a university campus (i.e., 32 h total), and a half-day family reunion on campus (i.e., four hours total). However, following a resurgence of COVID-19 from January to May 2021 and social distancing measures subsequently adopted in Hong Kong, it became impossible to conduct MFT face-to-face, and one of the two MFTs in our study was thereafter conducted online (Fig. 1).

The MFT program in both face-to-face and online delivery modes began with one or two energizing activities

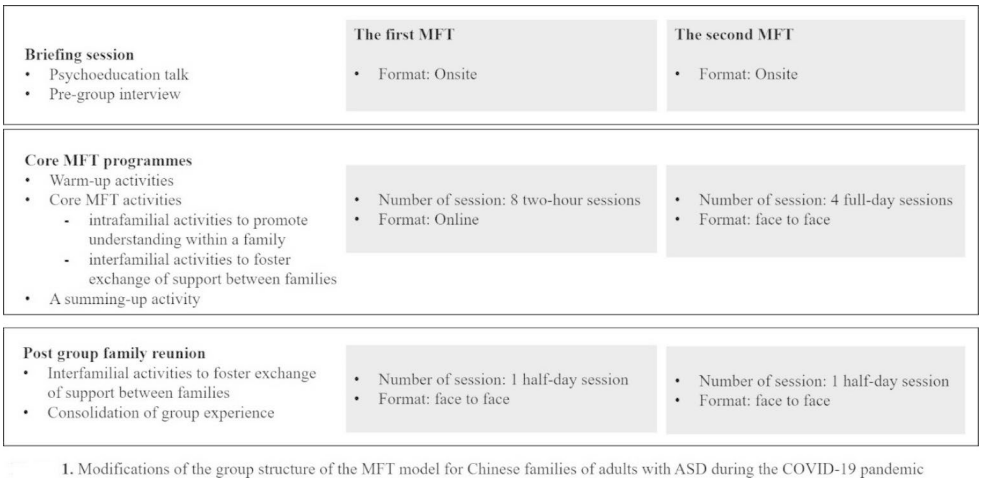

Fig. 1 Modification of the group structure of the MFT model for Chinese families of adults with ASD during the COVID-19 pandemic

1. Modifications of the group structure of the MFT model for Chinese families of adults with ASD during the COVID-19 pandemic

designed to create a fun and relaxing group atmosphere wherein the family participants were encouraged to interact with one another. After that, a core joint family activity was conducted, either of an intra-familial nature (e.g., *the digital family photo album*) or a cross-familial nature (e.g., *the youth forum* and *the radio podcast*). For the face-to-face session, one more joint family activity or parallel group activity was conducted after lunch. Before the end of each session, a closing formality was conducted to invite the group members to share their appreciation of the others or themselves. Normally in a face-to-face session, each core activity lasted for one and a half hours, which gave the participants enough time to prepare their work at their own pace. In an online session, the family participants were asked to work on a specific assignment prior to the session (such as searching for a song to represent the challenges that one encountered in interpersonal relationships). In so doing, the core activity of each online session could be finished within one hour so as to keep up the group momentum.

Ethical Considerations

Our study received ethics approval by the Committee of Survey and Behavioural Research Ethics at the Chinese University of Hong Kong. All participants participated voluntarily, were informed of the ethical issues involved in the study, and provided their written consent to be recorded before engaging in MFT. The families were also told that they could withdraw from the study at any time without penalty. To ensure the confidentiality of the online MFT sessions, a private, password-protected online meeting was arranged for each session. The therapists conducted the sessions in a private room, and the family members were asked to attend the sessions at home. All attendees, including the therapists, were also asked to have their webcams turned on throughout the session as a means to verify their identity.

Measures

Client Satisfaction Questionnaire (CSQ)

A self-administered client satisfaction questionnaire (CSQ) was developed by the authors for the purpose of the present study. The CSQ was distributed to each participant after every face-to-face or online MFT session. The CSQ consists of seven items. Each of the first five items addressed one aspect of a MFT process factor or a perceived change of the family participants: (1) treatment satisfaction ("your degree of satisfaction with the session"), (2) cross-family therapeutic alliance ("the degree to which the session can help foster interfamilial understanding and support"), (3) treatment engagement ("the degree to which you were involved actively in the session"), (4) enhanced family relationship ("the degree to which the session can help enhance your family relationships"), and (5) increased self-understanding ("the degree to which the session can help increase your self-understanding"). Each of these items was rated on a 5-point Likert scale ranging from 1 (*strongly disagree* or *greatly dissatisfied*) to 5 (*strongly agree* or *greatly satisfied*). The remaining two items (participant's degree of satisfaction with MFT activities and an open-ended question inviting the participant's suggestions on the session) were mainly for MFT program development; hence, we did not include these data for analysis in the present study.

Although single-item measures may be less reliable than multi-item measures, which may raise methodological concerns, single-item measures were considered more pragmatic to be employed in the present study than multi-item measures given that the participants had to respond to the questions multiple times and had a limited time to answer them. It has been suggested that a single-item measure may reach an acceptable level of reliability given its absolute clarity and transparency about what is being measured (Postmes et al., 2013).

Table 1 The semi-structural interview guidelines

Questions for the focus group interviews
1. Please describe your experience in the MFT.
(i) How was the group atmosphere?
(ii) How was your experience interacting with other families?
2. Please describe a moment in the MFT that impressed you the most. What was it? And why was it impressed you?
3. Did you experience any differences in yourself (i.e. psychologically and behaviorally) during the MFT?
4. Did you experience any differences in the way of relating to your family members?
5. Any specific elements in the MFT that may have contributed to the differences?
6. Did you gain a new understanding about yourself and your family after joining the MFT? What was that and how did it relate to your experience in the MFT?

Post-Treatment Focus Groups with Participating Family Members

Post-treatment focus groups were conducted after the reunion session in each MFT. Five focus groups were conducted, including three with parents ($N=18$) and two with adults with HF-ASD ($N=10$). Each group was led by a research assistant who received training from the authors to follow the semi-structural interview guidelines that we developed (Table 1). We also acquainted them with the backgrounds of the participating families and provided them with an overview of the interventions being implemented in our study. Following the interview guidelines, the interviewers explored the families' experiences with participating in the MFT and the changes that they had perceived in themselves, in their family members, and in their family relationships. Each focus-group interview lasted 45 to 60 min.

Data Analysis

Quantitative Analysis

Pearson correlation analysis was performed using IBM SPSS Statistics version 28 to examine the associations between the process factors and the treatment outcomes of MFT. To compare the effects between the online and face-to-face MFTs, we performed Mann–Whitney *U* tests with changes in the raw scores for each item on the CSQ (i.e., score of the final session minus score of the first session). Cohen's *d* was also computed.

Qualitative Analysis

The focus-group interviews were recorded and transcribed verbatim, except that pseudonyms were applied to ensure the participants' confidentiality. Data analysis followed the step-by-step guidelines for thematic analysis proposed by Braun and Clarke (2006). Researcher triangulation was adopted throughout the thematic analysis to enhance the trustworthiness of the qualitative findings of the present study. The first and second authors reviewed the data individually until achieving familiarity with the whole dataset and documented their initial thoughts about the potential codes. Then, the first author developed a preliminary coding scheme containing 21 initial codes, after which the two authors organized the unstructured data into key themes, concepts, and emergent categories with reference to the thematic findings in the MFT literature (Table 2). All potential themes were checked against the dataset, and analysis continued until the names and definitions of the themes were refined to our satisfaction.

Table 2 Analysis of qualitative data

Theorizing phase	Conceptual category	Subtheme
A cross-family interactional context	Observational learning (50%)	Spontaneous interactions between group participants (35.7%)
		A 'mirror' for self-reflection (28.6%)
	Direct exchange (46.4%)	Free expression facilitated by group activities (32.1%)
		In-depth sharing facilitated by cross-family dialogue (21.4%)
Authentic engagement with persons with high-functioning autism spectrum disorder	Psychological safety (32.1%)	Peer acceptance (17.8%)
		Being oneself (14.3%)

Results

Quantitative Findings

Positive Associations Between Factors and Outcomes of MFT

Pearson correlational analysis revealed that two factors of the MFT intervention, namely cross-family therapeutic alliance ($r=.69$, $p=.001$) and treatment engagement ($r=.59$, $p=.01$), were positively correlated with the enhanced family relationships of the participating adult children with HF-ASD and their parents. The results also show that treatment satisfaction ($r=.39$, $p=.047$) and treatment engagement ($r=.41$, $p=.034$) were positively correlated with the increased self-understanding of the participating family members (Table 3).

Table 3 Pearson correlations between process factors and treatment outcomes

	Treatment outcomes	
Process factors	Enhanced family relationships ($n=28$)	Increased self-understanding ($n=27$)
Treatment satisfaction	0.12	0.39*
Cross-family therapeutic alliance	0.69***	0.065
Treatment engagement	0.59**	0.41*

Note. * $p<.05$. ** $p<.01$. *** $p<.001$.

Table 4 Comparison of post-treatment changes in mean scores for online and face-to-face multifamily therapy (MFT)

	n	Change score *M* (*SD*)	Change score $M_{difference}$ (95% CI)	Cohen's *d*
Process factors				
Treatment satisfaction				
Online MFT	13	0.15 (0.55)	0.22 (−0.32, 0.76)	0.70
Face-to-face MFT	15	−0.067 (0.80)		
Cross-family therapeutic alliance				
Online MFT	13	0.46 (0.66)	0.79 (0.35, 1.24)**	0.57
Face-to-face MFT	15	−0.33 (0.49)		
Treatment engagement				
Online MFT	13	0.54 (0.52)	0.40 (−0.18, 0.97)	0.72
Face-to-face MFT	14	0.14 (0.86)		
Treatment outcomes				
Enhanced family relationships				
Online MFT	13	0.62 (0.65)	0.68 (0.15, 1.21)*	0.68
Face-to-face MFT	15	−0.067 (0.70)		
Increased self-understanding				
Online MFT	13	0.38 (0.65)	0.38 (−0.14, 0.91)	0.67
Face-to-face MFT	14	0.00 (0.68)		

Note. * $p<.05$. ** $p<.01$

Comparison of Changes in Scores for Factors and Outcomes of Online Versus Face-to-face MFT

As revealed by the Mann–Whitney *U* tests, significant differences exist in the changes in scores for cross-family therapeutic alliance ($p=.007$) and enhanced family relationships ($p=.033$) between the online MFT and face-to-face MFT (Table 4). Positive changes in scores for both of those variables found for the online MFT indicate positive changes experienced by the participating family members from the first to last session of the online MFT.

Qualitative Findings

Two overarching themes about the MFT sessions were identified in the data: 'having a cross-family interactional context' and the 'authentic engagement of people with HF-ASD'. Participants who joined the face-to-face MFT perceived these two characteristics of the MFT sessions as being helpful for creating a platform for promoting the participating family members' intergenerational understanding, while our qualitative findings showed that participants who joined the online MFT perceived 'cross-family interactional context' as the only helpful factor in the MFT process. The 'cross-family interactional context' in the MFT sessions was characterized by the cultivation of observational learning and direct exchanges between parents and the adult with HF-ASD, whereas the 'authentic engagement of people with HF-ASD' was primarily characterized by the sense of psychological safety induced in the group-based process.

Cross-Family Interactional Context

Observational Learning The adult children with HF-ASD in our study found their parents to be very intrusive and avoided talking to them and seeking them out for parental advice and/or support. As a result, the parents had limited ways of understanding their children, who typically refused to communicate about the challenges that they were facing. From the parents' perspective, the natural, spontaneous interactions between family members in both face-to-face and online MFTs provided fertile ground for them to observe their grown children in new interpersonal contexts, including their social interactions with parents and peers from other families. The cross-family interactional context in the MFT sessions thus offered a medium through which parents could observe their grown children from different angles and promoted alternative perceptions of them:

> "I used to find my son to be a dependent person. Now, I realized that he's mature and independent and has his own ideas. [Interviewer: What inspired you to have this new understanding of your son?] Not any specific activity but just the way that he responded to the others. I shouldn't treat him like a baby anymore." (Mrs. Wu, mother, online MFT)

Modeling, a form of observational learning, also took place between parents in the cross-family interactional context of the MFT sessions. By observing how other parents

interacted with their grown children, the parents began to reflect on their own parenting practices:

> "In the MFT, I can observe how other parents get along with their grown children ... and how they handle difficult family situations." (Mr. Wong, father, face-to-face MFT)

Meanwhile, the adult children with HF-ASD could observe different levels of social interactions unfolding in the group process, which helped to induce their own self-reflection:

> "The group is like a mirror. I can understand myself more by looking at others who are similar to me. I can also observe how other group members get along with their parents. I've learned from that." (Alan, 21-year-old son with HF-ASD, face-to-face MFT)

Some participating family members also reported positive changes that had occurred in their family interactions. The adult children with HF-ASD found that their parents had become less forceful and more respectful to them—that is, in a way befitting their developmental stage—after gaining a better understanding of their strengths and characteristics. In turn, the changes in their parents' practices motivated the adult children with HF-ASD to open up to their parents:

> "I feel that my parents respect me more. The group tuned their mind-set. My mother has become more willing to listen to me and less pushy. I've been more willing to talk to her as a result." (Charles, 28-year-old son with HF-ASD, face-to-face MFT)
> "My mother has become less forceful around me. She's learned to understand the reasons behind my actions. I feel that she can see that I've grown up ... and doesn't treat me like a child anymore." (Dave, 25-year-old son with HF-ASD, online MFT)

Direct Exchange The participants perceived the design of the group activities in both face-to-face and online MFTs as being crucial to facilitating free expression between the adult children and their parents. Many participants especially appreciated the Youth Forum, one of the group activities implemented in the middle stage of the MFT, which they characterizing as having established a safe, relaxing platform for intergenerational conversations about topics seldom discussed among the family members. While the adult children with HF-ASD could express their views directly, the parents could listen and respond in return. By extension, the group experience was described as being helpful for initiating more open family communications at home as well. Those group activities, which involved using different media such as photos and songs, were described by the participating family members as helping to facilitate self-expression among the group members. The songs and photos in particular helped the adult children to voice their thoughts and convey messages to their parents in a relaxed, caring manner.

> "My parents have increased their understanding of ASD. They've become more willing to communicate with us [Kay and her twin sister, who was also diagnosed with HF-ASD] on the topic." (Kay, 26-year-old daughter with HF-ASD, face-to-face MFT)
> "We're not good at expressing ourselves. The song that your daughter picked really touched my heart. The song described how they understand that we [parents] have accompanied them all along and never given up on them." (Mr. Wu, father, online MFT)

As the design of the group activities encouraged adult children with HF-ASD to begin openly expressing themselves, the parents came to realize that their children's self-expression could be developed into a sustained, in-depth intergenerational dialogue largely due to the active participation of group members from multiple families. Because the MFT involved families facing similar challenges, the participating parents were highly familiar with the characteristics of HF-ASD and could help by asking follow-up questions in tactful ways:

> "Other parents have come to know them [the adult children with HF-ASD] and asked follow-up questions. It's been very helpful because it encourages them to share." (Mrs. Chan, mother, face-to-face MFT)

Many participating parents themselves shared that they used to attribute the difficulties encountered by their children to their children's lack of certain abilities. In the MFT, however, they began to understand the inner worlds of those young adults, which are full of suffering and painful experiences with social relationships. The direct expressions in the MFT sessions promoted not only the parents' understanding of their grown children but also their acceptance of such young adults in general. Such a tolerant family atmosphere has motivated the adult children to continue to share their true feelings and thoughts at home:

> "I realize that all that I can do is accept my son." (Mr. Wu, father, online MFT)
> "Charles's sister who didn't join the group noticed something different about him. He'll now share his

thoughts with his sister at home." (Mrs. Wong, mother, face-to-face MFT)

Authentic Engagement with People with HF-ASD

Psychological Safety As narrated by the adults with HF-ASD, the safe environment provided by the MFT—an environment in which they felt comfortable with talking about painful experiences in their social relationships—was a key factor that encouraged their full engagement with the intervention:

> "It's strange to talk about difficulties with social relationships at home ... but I feel safe with saying so here." (Lynn, 26-year-old daughter with HF-ASD, face-to-face MFT)

However, this psychological safety induced from the group environment was only shared among participants who joined the face-to-face MFT. None of the participants from the online MFT mentioned this component in the interview. As observed by the parents, their adult children's sense of psychological safety primarily stemmed from the peer support and peer acceptance offered in the face-to-face MFT sessions. During the parallel children's group in the face-to-face MFT sessions, the adult children with HF-ASD could communicate in great depth about their favorite hobbies and interests, their daily struggles and sources of suffering, and even their aspirations for the future, all topics that they seldom have an opportunity to discuss on ordinary days. In turn, the parents perceived the group-based experience as helping to boost the self-competence of their adult children with HF-ASD:

> "They have friends here. Both his son and my son like drawing. For them, they look at the details and think that the drawing is a masterpiece! It's good that they can find appreciation here." (Mrs. Chin, mother, face-to-face MFT)

The parents were also amazed to witness their adult children with HF-ASD befriend one another so quickly. Being in a group of peers with similar experiences and challenges was found to help the adult children with HF-ASD to feel safe with being themselves and to fully engage in expressing themselves to others in the group:

> "He could enjoy himself and talk freely to his peers in the group. He can be himself here. I can develop a better understanding of him." (Mrs. Chan, mother, face-to-face MFT)

Discussion

Our study was an initial attempt to use MFT for families with adults with HF-ASD in Hong Kong during the COVID-19 pandemic, as well as the exploration of client-perceived process factors of MFT. In our study, the participants' cross-family therapeutic alliance, treatment engagement, and treatment satisfaction were positively associated with enhanced family relationships and increased self-understanding. Our findings suggest the acceptability of MFT in online and face-to-face modes and the possible benefits of enhancing family relationships for the adults with HF-ASD and their parents.

Consistent with our first hypothesis, our findings corroborate existing knowledge about common factors of psychosocial interventions for the ASD population (Albaum et al., 2022). In particular, two factors of MFT—cross-family therapeutic alliance and treatment engagement—were positively associated with enhanced family relationships in our study, and treatment engagement and treatment satisfaction positively associated with increased self-understanding, both among the adults with HF-ASD and their parents.

On the one hand, having a strength-based MFT program and facilitating peer appreciation can induce personal acceptance within the group and a sense of security among participating adults with HF-ASD and their parents. In turn, those elements can produce a feeling of satisfaction with participating and encourage participants to actively engage in therapeutic processes. As demonstrated in our study, the processes thus became suffused with spontaneous interactions between participants, from which self-understanding was promoted via observational learning that occurred moment-by-moment during therapy. Findings about that mechanism of change extend Hull's (2020) discussion on strategies to promote therapeutic change for people with ASD in both individual- and family-based (i.e., group-based) approaches to psychotherapy.

On the other, given that spontaneous, playful experiences with creative media can promote the communication skills of people with ASD (Martin, 2009), the free, open expression of adults with ASD may be facilitated in MFT and thereby promote mutual understanding and trustful relationships between participating families. The emerging positive bonds between the families may subsequently induce their therapeutic alliance and mutual engagement during therapy, which can motivate them to work toward achieving shared goals together in therapy. Our experience aligns with that of Cook-Darzens et al. (2018) and Gelin et al. (2018) in that direct exchanges between the participating family members were facilitated once a sense of communality emerged in MFT, which in turn benefited their family relationships.

Contrary to our expectations, however, significant differences arose between the online and face-to-face MFTs in

the development of a cross-family therapeutic alliance and changes in family relationships during therapy. The positive result of developing a cross-family therapeutic alliance in the online MFT seems to align with our qualitative finding—a cross-familial interactional context was perceived by the participants as the only helpful process factor in the online MFT. Individuals with HF-ASD reported the perceived benefits of computer-mediated communication in the aspects of increased comprehension and control over communication (Gillespie-Lynch et al., 2014). This may therefore favor the formation of an alliance between adults with HF-ASD and other participants in the online MFT than in the face-to-face setting. However, one should interpret these unexpected results cautiously as there could be the history effect that occurred when the two MFTs were conducted. Whereas the online MFT was conducted when Hong Kong was under lockdown, the face-to-face MFT was conducted when social distancing measures had been relaxed. Under such contextual differences, the families' relational situations and need for social connection might have varied between the participants in the two MFTs, thereby leading to biased results. Future studies comparing the treatment effects of online and face-to-face interventions should involve conducting multiple intervention groups simultaneously in order to minimize that threat.

Even so, the positive feedback from the participating families may shed light on the feasibility of conducting family-based group psychotherapy online. Our findings, consistent with Narzisi's (2020) study, provide preliminary support for the possibility of integrating online interventions into traditional face-to-face approaches with the ASD population. The provision of family-based interventions online could sustain professional support for adults with HF-ASD and their families, even when meeting physically is impossible.

Limitations and Recommendations

Our findings come with a number of limitations. First, our small sample and lack of a comparison group in statistical analysis reduced the quality of our findings owing to the potential threat of selection bias in relation to the data. The data being analyzed in the present study is hierarchical and interdependent. The statistical analyses in the present study do not account for the fact that the participants (adults with HF-ASD and their parents) are clustered in families and within two treatment formats (face-to-face MFT vs. online MFT). Hence, our findings should be interpreted with caution. Second, the objectivity of our data analysis may have been affected by our dual roles as both researchers and therapists in our study, and such investigator bias may have harmed the trustworthiness of our findings. Third, a single-item measure was employed, which reduced the reliability of our findings. In response, future research should involve assessing the treatment efficacy of MFT in helping families with adults with HF-ASD in a Chinese context while using more sophisticated research designs (e.g., a randomized control trial) and more advanced statistical models (e.g., an HLM) with larger samples. Standardized scales should also be employed and two sets of questionnaires developed to differentiate the treatment outcomes of MFT on adults with HF-ASD and their parents. Future study is warranted to develop a new scale for measuring the cross-family alliance, which is important for further investigation into the change mechanism of an MFT.

Conclusion

Our study provides preliminary evidence of the feasibility of conducting MFT online with families of adult children with HF-ASD in a Chinese context, especially during the COVID-19 pandemic. Cultivating a therapeutic alliance between families and promoting the treatment engagement of participating family members can be helpful strategies in psychosocial interventions for adults with ASD and their parents.

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Data Availability The data that support the findings of this study are not publicly available to protect the confidentiality of the family participants.

Declarations

Conflict of interest The authors declare that there is no conflict of interest.

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