Contemp Fam Ther (2012) 34:187–203
DOI 10.1007/s10591-012-9186-6

ORIGINAL PAPER

Advancing Medical Family Therapy Through Research: A Consideration of Qualitative, Quantitative, and Mixed-Methods Designs

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Published online: 8 April 2012

Abstract To survive in today's healthcare climate, stakeholders across all mental health disciplines must work to produce empirical evidence that earns their fields' regard by educators, providers, and policy makers. As the field of Medical Family Therapy (MedFT) answers this call, it will be important for researchers to clearly define, characterize, and assess MedFT practice across clinical, operational, and financial arenas of care. In this account, we propose a common lexicon from which to do this, highlighting the following core tenets of MedFT: systems theory, biopsychosocial-spiritual sensitivity in practice, agency, communion, interdisciplinary collaboration, and the three-world model of healthcare. We conclude by offering concrete ways to advance the MedFT research agenda using qualitative, quantitative, and mixed-method approaches.

Keywords Collaborative family healthcare · Integrated healthcare · Medical Family Therapy · Research agenda · Research methods

Over the past two decades, Medical Family Therapy (MedFT) has emerged as a distinctive subspecialty of Marriage and Family Therapy. Since its foundation, MedFT has adapted

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and evolved in response to the dynamic and ever-changing landscapes of healthcare, including the advent of healthcare maintenance organizations, the Patient Protection and Affordable Care Act, and recent calls for patient-centered medical homes. These shifts in care contexts have presented both challenges and opportunities for the development of innovative disciplines with practitioners who specialize in collaborative care. To survive in today's healthcare climate, all mental health disciplines must work harder to produce empirical evidence that contributes to the body of knowledge about the respective and overlapping effectiveness of treatment approaches to earn favor by educators, providers, and policy makers. As we work to answer this call, researchers must clearly define, characterize, and assess MedFT across clinical, operational, and financial arenas of practice. To this end, the two-fold purpose of this paper is: (1) to establish/confirm a lexicon for MedFT research, and (2) to identify research methods (qualitative, quantitative, and mixed-methods) that bear promise to advance the field of MedFT.

Background and Context: From MedFT's Beginnings to Today

In 1992, McDaniel, Hepworth, and Doherty first described the collaborative, biopsychosocial (BPS) approach of Medical Family Therapy. While acknowledging that other mental health disciplines provide clinical services alongside medical providers using a comprehensive lens, they advanced the distinctiveness of MedFT through its purposeful application of systems theory. Later authors agreed that the core elements of a biopsychosocial (BPS) perspective, systems theory, and interdisciplinary collaboration were necessary to authentically characterize MedFT (e.g., Linville et al. 2007). Beyond these essentials, specific attention has been given to the goals of agency (i.e., an active involvement and control in one's own healthcare) and communion (i.e., the sense of community and connectedness during an illness journey) (McDaniel et al. 1992).

These fundamental components of MedFT have shown continued applicability as MedFT is practiced today. Using a Delphi study to achieve consensus among field leaders, MedFT has recently been defined as an approach to healthcare built from a biopsychosocial-spiritual (BPS-S) perspective and marriage and family therapy, informed by systems theory (Tyndall et al. 2012). Participants queried also supported the continual goals of agency and communion, accompanied by a new theme related to facilitating workplace dynamics in the healthcare system. Many participants also believed the inclusion of a spiritual dimension in the BPS framework was necessary. Returning to is utilization of systems theory, MedFTs take a meta-perspective on the larger team and care delivery process, and thereby intervene at an eco-systemic level.

Concurrent with Tyndall et al.'s (2012) systematic definition of MedFT, a second edition of the seminal text *Medical Family Therapy* (McDaniel et al. in-press) further clarifies the original vision and new opportunities for the field. For instance, an expanded list of clinical techniques for MedFTs holds particular utility for clinical practice, including: (a) recognizing the biological dimension; (b) eliciting the family illness history and meaning; (c) respecting defenses, removing blame, and accepting unaccepted feelings; (d) providing psychoeducation and support; (e) reinforcing the family's non-illness identity; (f) facilitating communication; (g) attending to developmental issues; (h) increasing agency through patient activation; (i) enhancing communion; (j) maintaining an empathetic, mindful presence; and (k) improving team functionality (McDaniel et al. 2011, in-press).

As MedFTs progress in formulating a coherent research agenda, it will be imperative that the aims are based upon recommendations by highly regarded funders, such as the

National Institutes of Health (NIH) and the Agency for Healthcare Research and Quality (AHRQ). These organizations maintain that both dissemination research and implementation research are essential. Dissemination research is "the systematic study of the processes and factors that lead to widespread use of evidence-based interventions by the target population," whereas implementation research seeks to understand the factors associated with the integration of evidence-based interventions in specific settings (e.g., worksite, school, medical facility) and whether the components of the original intervention were faithfully transported (or generalized) to the real-world setting (NIH 2012).

Arriving at consensus regarding what MedFT "is" represents a first step along the journey to quality research. In the following section, we propose a formal lexicon of MedFT's core tenets.

A Lexicon for Dissemination

Collaboratively-oriented professionals (MedFTs included) have taken strides to build an empirical base supporting their work, raising important questions about how "collaboration" or "integrated care" are defined and measured (Peek 2010). MedFTs find ourselves in a similar position as we strive to advance our field; it is essential that we establish a definition for what it is we do and how this definition overlaps with and is distinct from other disciplines in healthcare. Extant literature regarding our work is messy in this regard (e.g., defining MedFT inconsistently from one article to the next), and this makes it difficult for researchers to take steps to assess which components or processes of MedFT contribute to desired outcomes, and/or to evaluate and compare MedFT approaches to standard care alone and other collaborative models.

Drawing from the foundational work of McDaniel et al. (1992, in-press) along with writings by Linville et al. (2007), Tyndall (2010), and Tyndall et al. (2012), the key components of what MedFT looks like on-the-ground are now being synthesized. They include:

Systems Theory: Investigators should ground their research in systems theory. By recognizing all parts of a system to be forever interacting, adapting and changing, MedFTs understand that the results of change in one part of a larger whole can—and oftentimes cannot—be predicted. By specifically studying a MedFT's complex and reciprocal impact(s) on patients' health, interpersonal relationships, family systems, team functionality, and healthcare systems, MedFT researchers honor their systemic heritage and unique contributions.

Biopsychosocial-Spiritual (BPS-S) Sensitivity: Investigators should be mindful of not perpetuating a silo form of assessment, where only psychological or social dimensions are researched. Instead, research (and indeed, care) should include measures of biological, psychological, social, and spiritual elements. MedFTs view these areas as mutually influential and maintain that they should be studied as such.

Agency: Agency is defined as the active involvement and commitment to one's own care and a sense of making personal choices in dealing with illness and the healthcare system (McDaniel et al. 1992). This goal may be translatable to many psychosocial measures, including self-efficacy, autonomy, perceived competence, or internal locus of control.

Communion: Communion centers on connectedness and being cared for, loved, and supported by a community of family members, friends, and professionals to prevent the

fraying of emotional bonds by illness, disability, and contact with the healthcare system (McDaniel et al. 1992). As MedFTs approach research from a systemic viewpoint(s), it will be imperative to assess the ways that levels of community influence health, coping, and general quality of life.

Collaboration: MedFT involves active collaboration with providers representing multiple disciplines (e.g., Psychology, Social Work, Family Medicine, Nursing). We define this collaboration in accord to Peek's (2010) lexicon: "a team with a shared population and mission using a clinical system supported by an office practice and financial system using continuous quality improvement and effectiveness measurement" (p. 37).

Three-world Model of Healthcare: The fields (plural) of integrated healthcare have long called for sensitivity to how multiple stakeholders representing different "worlds" of our work intersect—and often compete—with each other. These include: (a) the *clinical world* that endeavors to provide exceptional patient care; (b) the *operational world* that works to employ efficient, well-integrated, and patient-friendly systems; and (c) the *financial world* that acts to stay economically viable through cost-effective utilization of healthcare resources (Patterson et al. 2002; Peek 2008).

Implementing the Medical Family Therapy Research Agenda

As outlined above and elsewhere in this Special Issue, providers across the fields of mental health (e.g., MedFT, Psychology, Social work) and biomedical care (e.g., Family Medicine, Pediatrics) have been increasing their efforts to collaborate with each other since the early 1990s (Campbell 2003; Linville et al. 2007; McDaniel et al. 1992, in-press). This movement is advancing in response to our burgeoning understanding and evidence that supports co-located and integrated services (Peek 2010; Kessler and Miller 2010). With more than 70 % of patients attending primary care visits having an underlying psychosocial comorbidity, it is easy to understand how satisfaction with healthcare experiences correlate with the collaborative nature(s) of service sites (Alfuth and Barnard 2000; Miller et al. 2010). The interrelated and reciprocal influences between family processes (e.g., support, communication, conflict, relationship quality) and health/disease processes (e.g., immune functioning, substance use) are well-documented, combined with encouraging evidence that purposeful attention to family processes in therapeutic interventions leads to targeted improvements in patients' and other family members' physiological well-being (e.g., diabetes management, cardiovascular functioning, asthma control) (Campbell and Patterson 1995; Linville et al. 2007; Tyndall 2010). As efforts to extend "collaboration" broaden to actively include patients and families together with the professional members of multidisciplinary teams, MedFT is serving as both a commonsensical and natural bridge (Campbell 2003; Harkness and Nofziger 1998; Linville et al. 2007).

MedFT's face validity of bringing together multiple healthcare disciplines and patients/families is not enough, however, to secure it a place at the collaborative healthcare table. Healthcare is evolving fast, and it is thereby essential that all healthcare disciplines work hard to produce solid empirical evidence in order to survive. Researchers must advance efforts to more systematically and thoroughly describe what MedFT looks like vis-à-vis other types of collaborative care, to assess which components or processes contribute to desired outcomes, and to evaluate and compare MedFT approaches to standard care alone and other collaborative models (Campbell 2003; Crane et al. 2005; Law and Crane 2000; Law et al. 2003; Peek 2010; Miller et al. 2010; Proctor et al. 2010; Tyndall 2010). This

work begins with establishing a shared lexicon (as referenced earlier), which will enable researchers and clinicians alike to consistently define and describe what they are doing (e.g., clinical techniques), the training of the clinicians who are doing it, the contexts in which the work is being carried out (e.g., primary, secondary, or tertiary sites), and the samples and health issues that are targeted (e.g., patients with a particular diagnosis vs. general clinic populations). Increased clarity across these and related foci will enable researchers to replicate the theory-driven studies that they conduct, ultimately serving to advance MedFT's credibility (Berger et al. 2009; Campbell 2003; Linville et al. 2007; Peek 2010).

As we drive efforts to implement MedFT, we must draw upon both qualitative and quantitative methods (respectively and together). The following sections are organized as such. We begin with a discussion of qualitative research, and how methods within this investigational frame can be advanced to inform knowledge across healthcare's three worlds (clinical, operational, and financial). We then highlight how quantitative methods can similarly target these worlds. We conclude with a consideration of how both qualitative and quantitative methods can be used together through mixed-methods approaches, specifically via community-based participatory research (CBPR) and practice-based research network (PBRN) platforms.

Advancing MedFT Through Qualitative Research

Qualitative methods should be purposively chosen according to each investigation's respective aims, scope, timeframe, and resources. Examples of potential methodologies include content or thematic analysis of individual interviews, focus groups, case studies, and observational or ethnographic studies. These varied methodologies provide a rich data base that can inform efforts across all three worlds of healthcare (Cohen and Crabtree 2008; Peek 2010).

Qualitative Research in the Clinical Worlds of MedFT

Qualitative research within MedFT's clinical worlds must engage patients and their families alongside the therapists and medical providers involved in care provision. It is important to understand from patients and families what their experiences and satisfaction are with MedFT, from its initial introduction and integration into services received to its conclusion (if applicable). How was MedFT described to patients? Did it make sense as part of the treatment-as-usual that they initially expected? What is voluntary or did it feel forced? What types of interventions or methods did the MedFT employ? Which ones were most relevant or useful? Which components of the MedFT (or the larger collaborative efforts of the multidisciplinary team) most influenced increased senses of agency, improved coping sequences, skill-development, disease management, or symptom improvement? Which components worked against beneficent outcomes?

Exploring providers' experiences with MedFT is also an essential part of the clinical aspect of this work. How was MedFT introduced, conceptualized or framed, and integrated into the clinical site's existing structure? Did therapists feel like valuable assets to a growing team, or like an extra-wheel and nuisance to already-busy physicians? Did medical providers see value in MedFTs (e.g., in improving clinical care processes, in decreasing time-burdens)? What types of interventions or collaborative sequences were the most useful in advancing good care and achieving desired outcomes? What processes felt clumsy, slow, or awkward?

One way to explore these and related foci through qualitative methods would be to conduct key informant interviews with participants representing the respective voices of those involved in a MedFT intervention (e.g., patients, family members, MedFT providers, physicians). Following a semi-standardized format, interview sequences could target key questions while simultaneously allowing for probes, elaboration, and in-depth discussion(s) regarding elements, processes, and outcomes of care that are most salient to those engaged. Using such a phenomenological approach, then, investigators could transcribe interviews verbatim and condense transcript (i.e., document) texts into a gross data base. Raw data could then be analyzed through an iterative data reduction method in which information is extracted and orchestrated into patterns, categories, and themes that emerge from the gross data base (Crabtree and Miller 1999; Creswell 1994; Kvale 1997; Kvale and Brinkmann 2009; Pope et al. 2000).

Knowledge gained through qualitative research about clinical processes will serve to inform efforts that position MedFT implementation as a justifiable disruption of standard care to patients, families, and clinic providers. Patients, their families, and their providers will see value in adopting MedFT as part of their treatment protocols. They will experience the integration of MedFT sequences as positive across both care process (in receiving and offering said care) and care outcomes (e.g., physical well-being, engagement in health behaviors that aid physical well-being).

Qualitative Research in the Operational Worlds of MedFT

Qualitative research within MedFT's operational worlds must extend to clinic staff (e.g., care coordinators, social workers, administers, medical assistants, dieticians, patient advocates), alongside aforementioned attention to patients, families, and MedFT and biomedical clinicians. Collaborative healthcare brings with it considerable complexity in referral sequences, follow-up and inter-staff/provider communication sequences, and the coordination of care visits (with patients, families, and clinic team members—or any combination thereof). With clinic staff, it is important to explore how MedFT was introduced or framed to them. Did it make sense in advancing the clinic's mission to improve patients'/families' health, or was it undemocratically announced as "one more thing" that they had to integrate into their work? What are the roadblocks to coordinating and scheduling visits that facilitate MedFT provision with biomedical care? What challenges have staff, MedFTs, and medical providers experienced in reaching or communicating with others about patients'/families' cases? What strategies have been the most useful in overcoming these roadblocks or challenges?

With patients, families, and MedFT and biomedical providers, qualitative research can help to answer questions about experiences and satisfaction with the operational processes of connecting the dots of MedFT and collaborative care. How easy is it to schedule joint meetings with different members of care teams? Are notes from a MedFT visit getting into the medical chart so that the medical provider knows what is going on when s/he sees the patient/family? Are patients/families seeing their providers talk with each other and/or extend care, questions, and clinical processes obviously informed by their communication and information-sharing?

One way to explore these and related foci through qualitative methods would be to conduct ethnographic studies within the care environments that MedFT is positioned. Data collection methods employed through ethnography are designed to capture understandings about naturally occurring social sequences in select human settings like an isolated tribal village, an inner-city gang, or a metropolitan primary care clinic (O'Reilly 2005; Schensul

et al. 1999). Researchers could use key informant interviews with real-time observations (direct and indirect), shadowing, and field notes targeting a variety of clinical processes, from the appointment desk and hallway conversations about care coordination and multidisciplinary collaboration sequences to team and clinical meetings (with and without patients and their families) and discussions/negotiations/problem-solving/etc. with support staff, medical assistants, medical records personnel, and other members of the clinical team. Data collected through these approaches tend to be extensive and complicated, but offer a comprehensive and multi-sourced picture of social and group processes that cannot be well-captured through straightforward questionnaires or related uni-modal methodologies (Miller et al. 2003).

Knowledge gained through qualitative research about operational processes will serve to inform efforts that position MedFT implementation as a justifiable disruption of standard care to clinical staff and administration. Matching lessons-learned to similar sites (e.g., by clinic size, staff size, logistics of space, scheduling sequences, and communication mediums) will enable clinic systems to modify the care they offer without having to reinvent the wheel. Patients, families, and providers will more readily accept and sustain MedFT within clinical care because it is not experienced as inconvenient, laborious, complicated or difficult to undertake.

Qualitative Research in the Financial Worlds of MedFT

Empirically demonstrating the financial benefits of MedFT (and even "collaborative care," more broadly) will be essential for it to survive within our contemporary large-scale markets of managed care and insurance companies/systems (Campbell 2003; Law and Crane 2000; Law et al. 2003). While quantitative methods are the principal means by which this will be accomplished, researchers and clinicians have much to gain in their implementation efforts from qualitative investigations that engage, especially, billing personnel and lead biomedical providers (i.e., physicians).

From billing personnel, qualitative inquiry can tap key barriers and challenges related to securing coverage for collaborative care services, advocating on behalf of patients/families to managed care organizations, negotiating blanket-coverage for team care versus working within the contexts of mental health carve-outs, and/or advancing and securing outside receptivity to joint treatment plans. From physician team leaders, qualitative research can access key stakeholder views that maintain MedFT to be a valuable component of collaborative care teams, even if it is assessed as a singular service (for which fees are collected) that is not objectively "profitable." Other non-financial benefits (e.g., MedFT clinicians can assist physicians in manners that make their work more time-efficient and/or satisfying, MedFT services performed now serve to advance cost-offsets in the future) are oftentimes seen as worth the trade-off (Proctor et al. 2010).

These foci, too, could be investigated qualitatively through a variety of methods. In addition to those already mentioned (i.e., key informant interviews, ethnography), focus group interviews including different and competing representatives of healthcare's different worlds would be useful. While analyzed with the same rigor as individual interviews, the interactive nature of group settings allow participants to talk with other group members (Hessy-Biber and Leavy 2008). As it relates to MedFT's operational worlds, this could uncover some of the gaps, respective and reciprocal perceptions (and misperceptions) that participants maintain about each other, and areas of agreement and/or conflict that they share. Ultimately, knowledge gained from research asking how billing personnel do their jobs will inform others who perform similar functions as MedFT is introduced.

Confidence in the utility of MedFT in improving physicians' experience with care and advancing future cost off-sets will help buffer expense-related concerns about the trade-offs of tangibly paying a MedFT team member and the less-tangible clinical and financial gains of doing so. As clinic administrators observe improved clinical processes, patient/family outcomes, and provider/care-team satisfaction, they will likely be more receptive to implement (if they are observing these changes from other sites/literature) or sustain (if they are observing these changes locally) MedFT.

Advancing MedFT Through Quantitative Research

Evaluative facets of implementation research call strongly for the application of quantitative methods (Miller et al. 2010). As we ask questions related to how MedFT performs vis-à-vis other treatment approaches, and/or what facets of care best predict desired clinical, operational, and/or financial outcomes, we must work to establish investigative designs that best fit with each project's unique aims, scope, timeframe, and resources.

Quantitative Research in the Clinical Worlds of MedFT

As Kessler and Miller (2010) point out, metrics are needed to provide standardized ways of assessing what MedFTs do in clinical care, and to be able to compare their role to the roles of others who operate within a healthcare setting. Furthermore, MedFT's emphasis on systems theory should encourage quantitative researchers to strive to gather as many data points as possible from each participant and worksite as to what the MedFT provided. For example, in examining a youth's well-child visit involving a MedFT as one of the care providers, we would want to consider the perspective of the child, caregiver(s), additional care providers, and other important others who attended the visit. To conduct quantitative research involving such complex designs (experimental or non-experimental), different methods have been developed that can be applied to MedFT outcome studies. In a true experimental design, randomization, a control group, an experimental group, and pre- and post- tests are all part of the study design where the goal is to determine whether the independent variables (IVs) have a significant effect on the dependent variables (DVs).

Randomized Methods In healthcare research (both biomedical and mental health) the most common conceptual methodology is between-groups designs, which tell us if our group clinical outcomes are significantly different from each other and in what direction. In between-groups designs it is typically hypothesized that an experimental treatment is superior to a comparison group (or standard treatment alone). To advance MedFT, we will need to determine how patients who receive MedFT (or experience MedFT as part of their care team) differ from those who receive standard treatment alone. For example, in a research study designed to monitor diabetic control (Hemoglobin A1C) and depression levels for a group of adults receiving weekly outpatient treatment, the participating sample could be randomly assigned to a healthcare team with MedFT or a healthcare team without MedFT.

Randomized control trials (RCTs) are increasingly using non-inferiority and equivalence designs. Often the two are used interchangeably to refer to trials in which the primary objective is to show that a novel intervention is as effective as a standard intervention alone, e.g., MedFT is equally beneficial as standard practice alone (Green et al. 2008). Non-inferiority and equivalence research designs further the between groups design by determining if the effects of two treatments are not clinically and statistically different

from each other. However, non-inferiority designs advance a one-sided test to determine if an intervention is no worse than standard intervention/treatment alone (as in the example above with diabetic control, MedFT inclusion is no worse than the standard team alone), whereas equivalence designs employ a two-sided test that allows for the possibility that the novel intervention is not better than the standard intervention/treatment. Non-inferiority designs can be of optimal value when a novel intervention/treatment, such as the inclusion of MedFT into clinical teams, has been developed that is more beneficial (e.g., easier to use, less costly, provides increased access, less side-effects) when compared to standard care alone, where essentially we are trying to show that the effectiveness of the new more appealing intervention/treatment is not much less than the standard intervention/treatment.

Non-randomized Methods Pre-experimental designs, although the least able to determine causality and lacking random assignment, can still contribute to the advancement of MedFT. The one-shot case study, which contains an intervention and post-test, could be used when randomization and a control group are not possible. For example, a MedFT that is new to a healthcare team could measure family functioning, quality of life, etc. after being at a site for one year. A single-group pretest/posttest would be useful if randomization is not possible, and researchers have ample time to administer a pre-test before the patient is seen at the clinic and experiences MedFT as part of their team. In a static group comparison, participants can optionally select if they would or would not like to see a MedFT as part of their visit (thereby assigning them into experimental and control groups), and pre-tests/post-tests would be delivered to both groups regardless of group selection.

Quasi-experimental designs may be necessary to use when the researcher has little control over the IV (e.g., when there is either no control group or random assignment). Such studies may include conducting post-test only analyses, such as the two-group post test which contains random assignment but no pretest. Interrupted and equivalent time series designs can be used to measure the dependent variable over time through pre-tests and post-test when researchers are only looking at one group.

One particularly helpful non-randomized method that could be used to determine how MedFT looks over several healthcare sites is the indirect comparisons method. This approach allows researchers to compare data from separate studies, rather than a direct comparison (such as in a RCT). This is particularly beneficial when there is a lack of, or insufficient, evidence to compare trials, such as in the sub-field of MedFT. Well-conducted RCTs provide the most valid estimates if direct comparison interventions/treatment are feasible, but many interventions have not been directly compared in RCTs (secondary to limitations in time, money, resources, etc.). Their results could still be used to estimate the relative effects of different treatments, however. Indirect methods may be the most promising, timely, and cost-beneficial way to determine how MedFT looks across different settings when compared to standard treatment.

Advanced Methods There has been a call for more complex statistical analyses that allow for the controlling of independent variables (IVs) and dependent variables (DVs), and simultaneously analyzing dyads (couples, parent–child, etc.) at the same time. Multi-level modeling methods such as Hierarchical Linear Modeling (HLM) and Structural Equation Modeling (SEM) allow for nested structures (e.g., clients in therapies and patients in groups, or repeated measures within one person). SEM is more of a confirmatory model (theory testing) whereas HLM is more of an exploratory model (theory development). HLM uses OLS regression and ANOVA, both which are based on the general linear model. HLM is useful for understanding relationships in hierarchical data structures, such as

patients or physicians within healthcare settings. For example, HLM would allow us to analyze whether there is a significant difference in mean patient outcome scores (e.g., on diabetic control or depression level) across different healthcare providers adjusted for appropriate covariates. Covariates may include patient characteristics (age, gender, diagnosis, etc.) and provider characteristics (e.g., disciplinary identification with MedFT, Psychology, Social Work). SEM involves analyses with observed (manifest) variables, latent variables (variables which are not measured directly), or both. Regression and ANOVA are included under SEM; often path diagrams are utilized to represent latent and observed variables.

Dyadic analysis assumes that dyads or dyad-pairs are related or share something in common (Kenny et al. 2008). The fundamental concept around dyadic data analysis is non-independence, or that outcome scores or indexes are linked in some way. Examples of standard MedFT dyad designs could include MedFT student and supervisor pairs or MedFT provider and patient pairs. In dyadic analysis there are three major types of variables: between-dyad variables (all variation is between dyads), within-dyad variables (all variation is within dyads), and mixed variables (there is variation within and between dyads).

For further reading on advanced quantitative analyses, see the supplementary reading list provided below.

Quantitative Research in the Operational Worlds of MedFT

Questions in the operational world should address how MedFTs function together with the team, the team's knowledge of and perceived value of MedFT, and support that is available from the office system for MedFT billing and coding. Similar to assessments that measure family cohesiveness or family functioning (e.g., the Family Assessment Device), such metrics could be applied to the clinical team and their overall functioning with MedFT.

The level of clarity and consistency (Peek 2010) for team members in the definition of MedFT and subsequent role could be measured through their use of common space, language, level of training (individually and cohesively), and the degree to which they have achieved a shared practice culture. Quantitative assessments could be conducted for how individual team members believe that MedFT is part of their mission, and provides a valuable service. For example, do MedFT providers operate under the same mission in a given clinical setting as the medical providers, nutritionists, etc.?

Electronic healthcare record (or medical record) abstraction could be a useful tool in analyzing, at the population level, the degree to which care plans integrate MedFT components. For example, the medical records of patients from a specific clinic that employs a MedFT could be analyzed to see if the treatment plan and goals include biological/physical, psychological, social, and spiritual components and how the multidisciplinary team plans on following-up with the patient about their BPS-S concerns. The reliability and efficiency of the office practice could be quantitatively assessed through the use time-stamping when patients walk-into their healthcare visit, when they are seen, who they are seen by, how long they are seen by each provider, their payment processing, and their exit. By providing descriptive time-stamped data, MedFT services can be quantified and compared to other services that exist in that setting or cohesively with the clinical team.

Olson and Watson (2009) have adapted the Circumplex Model, which traditionally has been applied to assess family functioning, to the study of team organizational dynamics. Team dynamics, particularly leadership, can have a significant impact on operational procedures and the overall satisfaction of the clinical team and system. The Team Organizational Profile (TOP) describes five leadership styles derived from assessments of

cohesion (ranging from disengaged, somewhat connected, connected, very connected, and enmeshed) and flexibility (ranging from chaotic, very flexible, flexible, somewhat flexible, and rigid) scores. Leadership styles include: uninvolved (high flexibility, low cohesion), controlling (low flexibility, low cohesion), permissive (high flexibility, high cohesion), micro managing (low flexibility, high cohesion), and balanced. The balanced style is beheld as the most functional style, where group members have higher satisfaction scores and interpersonal working relationships. The TOP assessment can provide a quantitative way to compare clinical team operations across different clinical sites, or to monitor improvement in team communication, satisfaction, and relationships.

Quantitative Research in the Financial Worlds of MedFT

Crane and Christenson (2012) provide a summary of the cost-effectiveness research for the profession and practice of marriage and family therapy. They based their work on four sources of data, including a large health maintenance organization (HMO), the Kansas State Medicaid system, Cigna (a Unites States health insurance benefits management company), and a marriage and family therapy training clinic. Three of these data sources represent healthcare systems which can provide valuable implications for future MedFT research in its financial world. Crane and Christenson report that there is a potential for a medical offset effect after couples or family therapy, with the largest reduction occurring for those patients who are termed "high utilizers" of healthcare. They also report that higher treatment costs are not associated with covering family therapy or couples therapy as a treatment option.

Crane and Christenson (2012) mention several ways that cost savings from family therapists as part of collaborative care models could outweigh the associated costs, including improved adherence to treatment recommendations, increased work productivity, and decreased malpractice suits. It will be important for integrated care with MedFT as part of the care team to show reduction in costs over time.

Advancing MedFT Through Mixed-Methods Research

Any of the qualitative or quantitative methods described above could be integrated together in a single study. Researchers must purposively assess the aims of their respective efforts and make decisions regarding which method(s) to employ in accord to said aims (Leech et al. 2010). Platforms from which to do mixed-methods research that align well with the collaborative spirit of MedFT and the broader scientific community's call to produce new knowledge that advances implementation are many. We highlight two broad approaches here: community-based participatory research (CBPR) and practice-based research networks (PBRNs).

Community-Based Participatory Research

The concept of CBPR evolved from *action research* in the 1940s and is characterized by investigations in which professional researchers partner with communities to generate knowledge and solve local problems (AHRQ 2004; Lewin 1946). Several key assumptions permeate work carried out in this manner; the following are those most commonly recognized and advanced in professional literature: (1) democratic and equitable partnership between all project members (e.g., participants, community stakeholders, researchers) as collaborators through every stage of knowledge and intervention development;

(2) promoting co-learning and capacity-building between and among partners; and (3) cyclical processes in which problems are identified, solutions are developed within the context(s) of the community's existing resources, interventions are implemented, outcomes are evaluated according to what participants maintain is most important, and interventions are modified in accord with new information as indicated (Bradbury and Reason 2003; LaVeaux and Christopher 2009; Mendenhall and Doherty 2005; Montoya and Kent 2011; Scharff and Mathews 2008; Strickland 2006).

CBPR has gained credibility in medicine, nursing, public health, and behavioral health since the early 1990s because of its ability to augment cultural awareness, inform understanding of patients' experiences, improve or generate services, facilitate community outreach and engagement, and enhance education (Chavez et al. 2003; Tobin 2000; Ward and Trigler 2001). Projects carried out through this method have effected improvements in asthma, dental and mouth-care practices, management of preoperative fasting, patient problem-solving skills, overall physical well-being, patient and practitioner satisfaction, patient-practitioner communication, and a number of other significant healthcare foci (Brugge et al. 2010; Hampshire et al. 1999; Lewis et al. 2010; Lindsey and McGuinness 1998; Mendenhall et al. 2010; Meyer 2000; Schulz et al. 2003).

Implementing Medical Family Therapy through CBPR is defensible on the grounds that many are extending the call for research methods that are as collaborative as the care they seek to evaluate. By engaging all stakeholders in the research process, we are able to create knowledge that respective groups (e.g., healthcare providers, health economists, patients and families) could not produce independently (Proctor et al. 2010; Luzinski 2012; Restall and Strutt 2008; Linville et al. 2007). Further, engaging the recipients of healthcare (along with the usual players) in service planning and evaluation is increasingly common because doing so enables them to have real impact (i.e., not just legitimize professionals' a priori ideas). This leads to better advances in the acceptability, accessibility, and quality of what is ultimately offered (Restall and Strutt 2008; Jencius 2004).

A CBPR investigation of MedFT, for example, could advance clinical world understandings of patients'/families' health behaviors by qualitatively interviewing them about how MedFT/biomedical provider collaboration influenced decision-making and coping processes in diabetes management. Quantitative analysis could follow, incorporating foci identified by both patients/families (e.g., communication facility through couple/family inventories like the FACES-IV (Olson 2011); depression through Patient Health Questionnaire—Ninth Edition (PHQ-9; Gilbody et al. 2007) and providers (e.g., metabolic control/A1c) as important. Operational world understandings of administrative sequences could be assessed qualitatively through focus groups with front desk staff and care coordinators (e.g., challenges/strategies related to scheduling multiple providers), and quantitatively through time-series evaluations of referral-to-next-visit waits and/or received-communications and task-backs between collaborating providers. Financial world understandings in CBPR regarding MedFT could be advanced by asking key stakeholders (e.g., insurance personnel, billing administrators) what is important as it relates to care finances, and then followed-up quantitatively by cost-tracking, measuring cost-offset, or comparing different groups recognized as warranting further evaluative attention.

Practice-Based Research Networks (PBRNs)

Practice-based research networks (PBRNs) are defined as groups of ambulatory practices that are devoted to the primary care of patients and their families (AHRQ 2011a, b; Pace et al. 2009). By joining together, PBRNs are able to draw on the experience and insights of

practicing clinicians to identify and frame research questions that can answer important questions about practice-improvements. They work to link these questions with rigorous investigative methods, and they share (electronically and in HIPAA-approved manners), track, and evaluate large medical record databases. PBRNs are designed in ways that enable researchers to produce research findings quickly so that new knowledge is immediately relevant to contemporary clinical work and, at least in theory, more easily integrated and assimilated into everyday practice.

While several PBRNs exist in the United States, the Collaborative Care Research Network (CCRN) represents one that is especially well-equipped to advance research about MedFT (American Association of Family Physicians [AAFP], 2009; Miller et al. 2010). The CCRN was created specifically so that clinicians could ask questions and investigate how to make collaborative care work more effectively through the examination of clinical, financial, and operational impacts of behavioral health (broadly defined) on health outcomes of patients and families seeking services through primary care sites. An investigation of MedFT using this platform, for example, could endeavor to understand the processes and steps related to and between physician referrals for MedFT and patients'/families' initiation of care. Doing this across several clinics would facilitate a comparison of different care sites' effectiveness in making referrals happen, as well as test (with a larger cumulative sample yielding more power) outcomes secondary to the care itself. Employing quantitative methods, researchers could collect data regarding referral (e.g., presenting problem), treatment initiation (i.e., was care initiated or not), and time-lag between referral and treatment initiation) through electronic chart review and simple descriptive and calculative methods. Qualitative key informant interviews could be employed to better understand referring providers' rationales for referring, clinic staff's experiences with making referrals work logistically and "stick" (i.e., sans patient/family no-shows), and patients'/families' understandings regarding the logic behind referrals made and experience with connecting from one provider to another. Standardized measures related to clinical outcomes (e.g., the PHQ-9 for referred patients presenting with depressive symptoms) could be tracked and entered into electronic charts over the course of care. Focus group interviews could follow care termination to explore patients' and families' experiences with the collaborative efforts of their care team.

Summary and Discussion

As MedFT researchers strive to formalize a significant place for the field within the current healthcare landscape, it will be particularly important to first standardize our professional identity. Drawing from the foundational work of McDaniel et al. (1992), along with writings by Linville et al. (2007), Tyndall (2010), and Tyndall et al. (2012), researchers must include elements of systems theory, biopsychosocial sensitivity to care, agency, communion, and interdisciplinary collaboration to remain true to the field's theoretical roots. Now that a standardized definition has been developed, future work can turn attention to specific qualitative and quantitative methodologies discussed previously to advance our field's evidence-base.

As researchers move toward selecting methodologies, the field of MedFT is situated with the challenge of being relatively young, especially when compared to our sibling disciplines of Psychology and Social Work. Within other disciplines, evidence-based practices (EBP) are expected and, indeed, the norm for clinical treatment and research design. Contrastingly, MedFT may benefit from practice-based evidence (PBE), known for

utilizing a "service-to-science" model (opposite of EBP, which uses a "science-to-service" model) (Luzinski 2012; Nicholson et al. 2007; Reupert and Maybery 2009). According to Tyndall (2010), there are currently only 60 studies that document MedFT, none of which are RCTs or have a high level experimental design (randomization, experimental/control group, pre/post tests, and/or IVs/DVs). This further confirms the utility of practice-based evidence and research in moving us forward as we provide the foundation for solid empirical evidence to take place in the future.

Aligning with Peek's (2008) three worlds of healthcare, we must evaluate MedFT across clinical, operational, and financial arenas. We can employ qualitative methods to tap patients', families', providers', and/or administrators' experiences with different care types and clinical procedures. We can advance quantitative methods to compare and track disease-related outcomes, cost-offset data, and/or inter-member functioning and satisfaction in care teams. We can use mixed-methods approaches to simultaneously capture the richness of participants' experiences alongside objective measures of beneficent change. Wherever we choose to start, and whatever we choose to do, we will be advancing MedFT because at the present time our specialty is so novel that there are more "gaps" in what we know than there are empirically supported areas of what we do.

Conclusion

To be clear, we are not advocating a campaign to "prove" MedFT's universal superiority over any other discipline, nor have we ever found inter-departmental squabbling over whose field or approach is "best" to be very helpful as it relates to clinical work. We believe that graduate students within any discipline have a greater appreciation of clinical populations, treatment approaches, and collaboration when they are exposed to each other's fields and learn how their own and other's respective efforts contribute to a larger mosaic of high quality and effective care. Just as there are some tasks in which a hammer is more appropriate than a screwdriver (and visa-versa), there will be some scenarios in which MedFT is a better fit than a straightforward psychological assessment or Social Work intervention. But in order for MedFT to have a stable place at the healthcare table, it (we) must catch-up and establish our purpose (through the established definition of who we are and what we do) and utility (through efficacy and effectiveness research) to be there.

And so, let's get started. Now.

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