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ORIGINAL PAPER

Using Qualitative, Quantitative, and Mixed Methods Research to Promote Family Therapy with Adolescents in Residential Settings

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Abstract For some time, the incorporation of family therapy in adolescent residential settings has been found to be related to improved outcomes. Nevertheless, there is an insufficient amount of research focusing specifically on the family therapy realm of residential treatment for adolescents. In an effort to address the problem of limited research within the field, this paper provides descriptions of qualitative, quantitative, and mixed methods that can be used in these settings. This paper takes the position that a scientist-practitioner approach may be most useful for expanding the literature on the subject. Furthermore, research questions that could be addressed are outlined, and studies that could be conducted to strengthen the place of family therapy in adolescent residential treatment are described. One of the difficulties associated with conducting such research is the diverse types of programs available. This paper offers a common language that can be used to describe each of the different types of settings. Throughout the paper, these descriptions facilitate the depiction of how research methods can be applied.

Keywords Residential treatment · Adolescents · Family therapy · Research

Inpatient treatment options for adolescents have been around since the 1920's, and originally focused on providing a safe environment for abused or neglected children (Francis and Hart 1992). Over the ensuing decades educational components were added, and these programs began to function in a manner closer to what is seen today. However, it wasn't until the 1970's that clinicians saw the need to incorporate family therapy into the therapeutic milieu (e.g., Kemp 1971; Koret 1973). By the 1980's it had become apparent that programs that involved the family in treatment had better outcomes (Jenson and Whittaker 1987; Lyman and Campbell 1996; Whittaker and Pecora 1984). Nevertheless, the majority of the research over the last three decades has continued to be focused on outcomes at the program level (e.g., Hair 2005; Leichtman et al. 2001; Lyons et al. 2001), and have largely ignored the specific role of family therapy, other than to indicate it was part of the milieu.

The lack of research specifically focused on the family therapy aspects of residential treatment for adolescents is symptomatic of a larger problem within the field of marriage and family therapy; namely, marriage and family therapists (MFTs) are typically focused more on practice than research and often turn over research in their field to psychologists, social workers, etc. (Crane et al. 2002). Given that between 50,000 and 200,000 children and adolescents are placed in residential treatment each year (Government Accountability Office 2008; Vaughn 2005) MFTs should be actively engaged in producing research that supports their inclusion in this field of care.

MFTs who are interested in research on adolescents in residential settings would do well to make use of a scientist-practitioner approach, wherein the clinician is also the researcher. MFTs in residential settings may be eager to read results supporting the effectiveness of family therapy in such settings, but will be disappointed with the limited amount of findings produced so far within academia. Additionally, given the diverse types of residential programs, MFTs in these settings may find it difficult to transfer findings from one type of program to another.

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What is needed is for family therapy providers within adolescent residential programs to understand the importance of producing their own findings to support their work, which can be accomplished by employing the scientist-practitioner model (Crane et al. 2002).

The purpose of this paper is to provide an overview of research methods that are available to scientist-practitioner MFTs in such settings and how these methods can be applied to strengthen the place of family therapy in residential treatment. Within the field of residential care for adolescents there are two areas that require concerted research focus. The first is the clinical aspect of the work, meaning the treatment that is delivered to the adolescents. The second aspect is the financial aspect, which concerns the costs and benefits of providing this type of treatment. Accordingly, the discussion of methods below will be broken down by aspect where possible.

Types of Residential Placement

One of the challenges of doing family therapy research with adolescents in residential treatment is that there are various types of placements available, and each of them has different ways of organizing treatment, involving the family, and delivering program content. Program types within five broad categories are described below. Definitions are based on the literature and the experience of the authors in working with adolescent residential programs.

Therapeutic Boarding Schools

Therapeutic boarding schools are residential programs focused on the emotional growth and development of the adolescent, while also preparing them for academic success (National Association of Therapeutic Schools and Programs [NATSAP], n.d.). These programs typically have fewer restrictions placed on the adolescent and have stricter admissions requirements. Commonly, therapeutic boarding schools operate on a level system that provides the adolescent with more freedoms and opportunities as they move up to higher levels. They are designed to provide therapeutic support to those students who have mental health issues, in such a way that they can be academically successful. Adolescents who participate in these programs typically stay for at least 1 year and sometimes up to 2 or 3 years.

Residential Treatment Centers

The term residential treatment center (RTC) is used to describe a wide range of programs and services designed to work with troubled adolescents, which has led to confusion about what exactly constitutes an RTC (Lee 2008). However, in general, residential treatment centers (RTCs) are inpatient programs designed to serve adolescents who are suffering from significant psychiatric, behavioral, or co-morbid disorders. Although the issues adolescents present with in RTCs are usually more severe than what would be seen in a therapeutic boarding school, the behavior is not severe enough to warrant psychiatric institutionalization. RTCs focus on behavior modification and psychiatric management, and usually will have medication management services onsite. Though RTCs will also sometimes use a level system, the opportunities for increased privileges are fewer than what would be expected in a therapeutic boarding school. The quality of these types of programs varies greatly throughout the United States, with at least one survey showing that 27 % don't offer any type of therapy services to adolescents in their care (Hockenberry et al. 2009). For the purpose of this paper, RTCs will be further broken down into two subtypes, client-funded RTCs and government-funded RTCs. Lee and Barth (2011) indicated that a program's funding source is an important factor in defining types of programs.

Client-Funded RTCs

These programs operate on funds paid by the family of the adolescent (Behrens and Satterfield 2006), are often run by for-profit organizations, and admit adolescents from all over the country. They usually have admissions standards that specify their target client and there is a heavy focus on providing quality therapeutic services. Some client-funded RTCs also have a strong academic component, which serves to facilitate entrance into top tier universities. Since clients in this type of program come from geographically diverse locations, family therapy opportunities are limited to phone therapy and infrequent family workshops. At higher levels in the program, opportunities may also be provided for the adolescent to participate in home visits.

Government-Funded RTCs

Government-funded RTCs will typically accept adolescents from the surrounding areas, are set up to operate under a mandate of the state. As the term implies, these programs are publically funded (Behrens and Satterfield 2006). As an example, in Iowa adolescents can be placed in a Psychiatric Medical Institute for Children (PMIC). Adolescents placed in a PMIC unit have to demonstrate a pattern of severe behavioral disturbance over time before being admitted due to high demand for services and long wait lists. Family members live closer to the facility, so opportunities for in-person family therapy are more readily available, though family engagement is a consistent challenge.

Short-Term Programs

The two primary types of programs that fall under the category of short-term treatment are substance abuse programs and wilderness therapy. Substance abuse programs are usually based on a 12-step recovery model and are similar to those designed for working with adults (e.g., Ouimette et al. 1997). These programs are more likely to want the adolescent to have some desire to change, even if the desire to change is largely being driven by external factors (e.g., a family intervention; Callaghan et al. 2005). Wilderness programs, on the other hand, do not require the adolescent to have any desire to change and most adolescents arrive resistant to treatment. Wilderness programs make use of backcountry travel (NATSAP, n.d.), usually last between 6 and 8 weeks, and offer little direct contact between family members during the expedition phase, with the exception of letters, and ongoing contact with the program's clinical staff. At the end of the program there is usually a "reunion" phase that spans a few days and provides opportunities for face-to-face family therapy. It should be noted the amount of contact between family members depends on the model used by a particular wilderness program. In fact, some wilderness programs require the family to be present for the duration of the adolescent's stay (e.g., Bandoroff and Scherer 1994).

Lockdown Facilities

Lockdown facilities are those that take high risk adolescents who may be a danger to themselves and others. One example of this type of setting is a psychiatric hospital where adolescents are committed as a result of a high risk of suicide. Another example is correctional facilities for those with conduct disorder and severe criminal behavior (Lee 2008). The length of stay at lockdown facilities varies and may be as short as a few days in the case of suicidality. Lockdown facilities are much more focused on controlling behavior and preventing harm than academic preparation or providing space for emotional growth.

Without a clear understanding of what each program type entails it is difficult to create, execute, and evaluate a meaningful research program (Lee 2008). In this section we have attempted to describe and define each of the major categories of residential treatment settings. While we acknowledge there continues to be a significant amount of disagreement regarding definitions (e.g., Lee 2008; Lee and Barth 2011), the definitions offered above will be used throughout the remainder of the paper to facilitate the present discussion.

In the discussion that follows, a brief description of each method will be presented before examining ways to use the given method, since not all readers will be familiar with all of the different possibilities. This overview will be followed by a brief review of research literature wherein the specific method had been utilized. After this brief review, studies that could be conducted using the methods are outlined, with specific focus on the clinical and financial aspects, as described above.

Qualitative Methods

Qualitative methods are most often used to explore and understand the meaning that individuals and groups assign to their lived experience (Creswell 2009). Some of the more popular methods are phenomenology, ethnography, narratology, grounded theory, action research, and the Delphi method (Creswell 2009; Sprenkle and Piercy 2005). Qualitative methods have in common the collection and analysis of primarily non-numerical data. The data is gathered through various methods, which may include observations, interviews, and review of written materials (e.g., participant journals). The researcher reviews the collected data, uses established methods of coding, and reports the themes and patterns that emerge.

Qualitative research on family therapy with adolescents in residential treatment is sparse. However, one example is Demmitt and Joanning (1998), who used focus groups with parents to determine their impression of the treatment process. Similarly, Spencer and Powell (2000), as well as Springer and Stahmann (1998), reported on feedback from parents about their role in treatment and what they found to be helpful during the process. The scarcity of qualitative research with families of adolescents in residential treatment is unfortunate since such methods often provide a foundation for additional quantitative inquiry. Furthermore, given that residential programs often require family involvement as part of the treatment process, there are ample opportunities to draw a sample without adding undue strain on families or staff.

Clinical Aspect

As noted above, the clinical aspect of treatment is concerned with how therapy is delivered and what makes it effective. The work of researchers like Spencer and Powell (2000) represents a foundation that can be built on, but the potential of qualitative inquiry to advance the field is much greater than what has been realized so far. Researchers should use qualitative methods to address questions pertaining to the treatment process. Some possible research questions include: What actions do therapists take to include parents in the treatment process? What did parents perceive as the most helpful aspect of family involvement? How did they change their behavior during the treatment process and what led to that change? How did their perceptions of the adolescent change over the course of treatment? What factors were most influential in taking

responsibility for their own behavior and working on their part of the relationship? How did the relationship change with siblings and other family members who were not the focus of treatment? How well are therapists communicating about the therapeutic process and what could they do better?

As previously highlighted, therapists in government-funded RTCs often have difficulty promoting engagement in therapy, notwithstanding the proximity of the program to the family. Family members of adolescents in government-funded RTCs may feel like the mental health care system is set up in opposition to them, even though the stated goal is usually for the child to return home to the family. Action research could be applied to this problem and used to generate solutions and methods for engaging the family. According to Mendenhal and Doherty (2005) action research is particularly amenable to situations where there is a need to correct an oppressive arrangement and understand the context of a particular system. One of the greatest strengths of action research is that the findings are immediately applicable to the local situation since the researchers are also participants in the system (Hambridge 2000; Mendenhal and Doherty 2005).

As described by Lewin (1958) action research involves first establishing an understanding of the problem and recognizing the need for collaboration in solving the problem. With regard to engaging families in residential treatment, therapists could sit down with a group of parents and discuss concerns and issues around family involvement. Adolescents could be brought into this conversation as well to get their perspective. During these initial meetings the democratic nature of the process and the need to avoid taking a one-up position would be emphasized. Therapists, parents, and adolescents could then be asked to work collaboratively to identify areas of concern and barriers to family involvement. During the second phase of the research process, the group would work together to establish methods that would be effective at promoting involvement and actively engaging families in the therapeutic process. The group would then come up with plans for implementing the ideas, followed by determining the required action steps. As the solutions and ideas are put into practice the group would meet often to determine how well the solutions are working and determine what changes are needed. During the third phase of action research, solutions are solidified into concrete processes that will be used by the group to promote a sustainable change in behavior. The therapists, parents, and adolescents would again gather data and feed it back into the system to determine how they will move forward in a way that keeps families engaged.

Another problem that could be addressed through qualitative research is the lack of an agreed upon set of best practices for family therapy in adolescent residential settings (McLendon et al. 2012). A study using the Delphi method could potentially address this deficit in the clinical treatment approach for this population. The Delphi method was developed to provide a group of experts the opportunity to share ideas in a way that reduced the likelihood of "group think" influencing the process (Dalkey 1969; Dalkey and Helmer 1963). In order to conduct this type of study a researcher could first identify a group of experts in the field who possess extensive conceptual and practical knowledge about family therapy within adolescent residential settings (Jenkins and Smith 1994). One possibility for accomplishing this would be to look for presenters at national conferences, such as those held by the National Association of Therapeutic Schools and Programs. Once the panel is determined, the researcher would send out a survey with open-ended questions to the panelists about what they believe constitutes best practices programs should follow with regard to family therapy. The researcher would then collect the responses and use them to create a well-structured questionnaire that is sent back out to the panelists (Hsu and Sandford 2007). The questionnaire would consist of the statements from the first round and require that the panelists rate their agreement with each one. The research would then analyze and summarize the findings from the questionnaire, and send it back out for a final review by the panel. Following this process would allow the panel to reach a greater level of consensus about best practices with each round of data collection and analysis. Best practices generated through this method could then be disseminated to accrediting bodies and used to guide intervention and research.

Financial Aspect

As highlighted by Crane and Christenson (2014) the field of marriage and family therapy in general finds itself in the precarious position of having to justify its place in the greater health care market. The problem is even more pronounced for residential programs, especially those that do not rely on government support. As health care costs began to increase dramatically in the 1980s and 1990s there was a call for less expensive forms of treatment. Studies began to appear showing that outpatient treatment of adolescents was effective and cost less than residential programs (e.g., Schoenwald et al. 1996). Residential programs have been slow to respond to this challenge. Cost-effectiveness will be established primarily through quantitative analyses, but qualitative studies could be used to set the stage.

For example, researchers could conduct a qualitative interview with parents to determine their decision making process given the high cost of client-funded RTCs and Therapeutic Boarding Schools. This type of inquiry may prove valuable in distinguishing between those who would benefit from placement in this type of setting more than

outpatient therapy alone. It is possible that the combined therapeutic and educational benefits of a residential placement outweigh the cost of the program in the minds of parents. Conversely, researchers could work with parents whose children have been placed in government-funded RTCs to determine how they and their families are affected as a result of participation. How much time are they spending complying with the requirements of the program? How much do they spend on treatment related activities, such as traveling to the program for session? How does this affect their work productivity? How has their own mental health been affected by the child's placement? The findings from these types of studies could prove useful to researchers trying to quantify the costs and benefits of adolescent residential treatment, as will be discussed later in this paper.

Another way qualitative methods could be used to investigate the financial aspect of adolescent residential treatment would be to interview different stakeholders in focus groups (Hesse-Biber and Leavy 2010). For example, researchers could conduct focus groups with insurance company decision makers to determine their thoughts about coverage for residential services and how family therapy fits into this form of treatment. Gaining insight into the thought processes of third-party payers could prove invaluable in increasing reimbursement rates and extending coverage to alternative treatments. Programs could use related findings to develop a response and address any revealed concerns. Another group that could be interviewed through the use of focus groups is politicians who have a role in funding programs. The responses provided by politicians could be helpful in the process of crafting legislation aimed at supporting the use of family therapy in residential settings.

Quantitative Methods

There are four main categories of quantitative research; namely, descriptive, correlational, quasi-experimental, and experimental (Creswell 2009). Quantitative designs are most often used to test conceptual models and understand the relationships between variables, establish the effectiveness of a particular treatment, or measure the opinions or views of a particular group. Within quantitative methods, the researcher uses established measures or assessments to quantify a participant's thoughts, emotions, and behaviors for use in statistical analysis.

Examples of quantitative research on family therapy in adolescent residential placements are more readily available. For example, Stage (1999) examined factors affecting the placement of a youth in a less restrictive environment (e.g., home) after discharge. Stage found that the use of family therapy was the only factor that significantly predicted discharge to a less restrictive environment for these adolescents. Lakin et al. (2004) studied the effect of parental involvement on post-discharge functioning. These authors found that those adolescents whose parents actively participated in phone calls, home visits, and family therapy had higher functioning at discharge. Additionally, they showed that greater family involvement served as a protective factor when it came to readmission. However, one weakness that should be noted in the studies cited above is that none of them included a control group for the purpose of comparison.

Clinical Aspect

The methods outlined below could be used by researchers to further establish the importance of family therapy in the treatment process for adolescents in residential settings. Although some past research has shown that adolescents do better when their families are involved, the methods have not always been rigorous and questions remain unanswered. Quantitative research on the clinical aspect of treatment will help researchers to better understand whether family therapy is effective, and more importantly, what makes it effective. Different programs use different approaches to involve the family and little to no research has been conducted to determine if any one approach is better than the others. These methods can be used to begin to address this gap in the literature.

Not all quantitative research in adolescent residential settings needs to be overly complicated to promote the use of family therapy. Even a descriptive study on the characteristics and views of those whose participation in family therapy is low could provide insight to programs and help them to develop better methods of engagement. Although a pre-experimental design does not allow for the determination of causality, such studies can still be useful in promoting the inclusion of family therapy through the accumulation of positive findings. One thing that makes this design so appealing is that most programs can easily collect data without adding a significant burden to staff or therapists. Many programs already have an assessment packet that adolescents and families complete when a child enters the program. In order to carry out a single group pre-test/-post-test study, the program would only need to evaluate the packet to make sure it contains all the measures of interest and readminister the measures at the end of the program.

However, it should be noted that a weakness of a single group design, as was evidenced in the studies cited above, is the lack a comparison group. Without a comparison group the attribution of the effect being caused by the intervention becomes more tenuous. The prevalence of this type of study in the literature is likely due to the use of retrospective data to determine the effect of family involvement on outcomes. One possible way to begin to address this deficit would be to use a prospective

non-equivalent control group design. In a non-equivalent control group study there is no randomization controlled by the researcher. Instead, participants self-select into a treatment and control group (Bryk and Weisberg 1977). In an adolescent residential program with a family therapy component a researcher could split participants into two groups. The first group would consist of those whose family members are actively involved in the treatment process, as evidence by the frequency of phone calls, arrangement of home visits, and participation in weekly family therapy. The second group would consist of those whose parents are not actively involved and regularly miss phone calls or refuse to participate in family therapy sessions. Differences in outcomes between the adolescents in these two groups could then be determined by comparing pre-test scores and post-test scores. One drawback of this approach is a threat to internal validity through selection bias; however, this could be mitigated by evaluating the pre-test scores of the individuals in both groups to determine similarity.

Although the non-equivalent control group design represents an improvement over single group designs, in order to determine causality prospective research with randomization is needed. This type of research could be conducted, for example, using the existing structure within a wilderness therapy program. The adolescents in these programs are usually placed within a specific group that has little to no contact with other groups throughout the expedition phase of their stay. Adolescents could be randomly assigned to different groups that receive different treatments. One group would receive the standard level of care with basic family involvement (e.g., reunion participation only). A second group would then receive the standard level of care and enhanced family involvement (e.g., reunion, home therapy, psychoeducation, etc.). The ability to randomly assign the participants would allow the researcher to determine if the treatment is causing the observed effect. Internal validity would also be strengthened since the researcher would be able to ensure that the treatment effects are not being transported to other groups; though to accomplish this they would need to ensure that the same staff consistently works with the same group. Additionally, the researcher could test different models of family involvement against one another by adding a third group. For example, the researcher could add family therapy via satellite phone on a weekly basis to the treatment of this third group and see if this increases effectiveness beyond what is observed with the enhanced family involvement approach alone.

Another unique design that could be applied to establish the utility of family therapy in these settings is the ABAB single subject design. Within this design baseline functioning is established, after which the intervention is applied. After the intervention is delivered it is then withdrawn again, though it is reintroduced a final time afterward (Creswell 2009). This type of design could be used without difficulty in an RTC where the adolescent is expected to remain for at least 1 year. The researcher could have the adolescent participate in treatment without any family therapy for the first 3 months, followed by 3 months with family therapy. This process could then be repeated by having the adolescent again experience the "no family therapy condition" for 3 months, followed by 3 months of family therapy before discharge. Adolescent and family functioning would be measure through the year to determine the effect of treatment on variables of interest. Use of this experimental design would allow the researcher to determine the effect of adding family therapy to the treatment approach.

Financial Aspect

As highlighted above, there is a significant need to evaluate the cost of treating adolescents in residential settings. This is especially true when one considers the number of articles arguing that some outpatient therapies produce better results and are more cost-effective (e.g., Klietz 2007; Schoenwald et al. 1996). However, it is not entirely certain that outpatient therapy is superior to inpatient programs in terms of outcomes or costs. This is due in large part to the very few studies that have directly compared inpatient and outpatient programs. In one of the few studies that directly compared the two, Grizenko and Papineau (1992) found there was no difference in outcomes, though the outpatient program was much less expensive than the residential program. However, this study stopped at evaluating cost-effectiveness and did not incorporate the benefits of treatment. Given the intensive treatment adolescents receive in residential settings it is entirely possible that additional benefits are realized that would further offset the cost.

In order to fully evaluate the financial aspect of adolescent residential treatment, researchers will need to conduct cost-benefit analyses. Cost-benefit analysis is a research method that involves the use of actual costs and economic estimates to determine the value of participation in a program. The first step in conducting a cost-benefit analysis is to determine the cost of treatment. Christenson and Crane (2014) recommend assessing both direct and indirect costs associated with treatment. Direct costs would include things such as staff pay, supplies, operational expenses, etc. Indirect costs are associated with lost resources, such as a parent having to take time off work to participate in a family workshop. In this case the parent's lost wages would be added in as one of the costs. In terms of benefits, researchers can include both direct and indirect benefits. An example of direct benefits would be increased wages available to the parent since they are spending less time being called away from work once their child is in a

residential placement. Another benefit that could likely be quantified is the increase in earning potential that an adolescent gets from the quality education provided in a client-funded RTC or therapeutic boarding school. Indirect benefits are those that are gained by avoiding a particular outcome, such as incarceration or hospitalizations (Christenson and Crane 2014).

Once all of the potential costs and benefits have been calculated, the researcher can use mathematical formulas to factor in the effectiveness of the intervention and determine the value of the intervention in terms of total savings. Given that Klietz et al. (2010) were able to show a total savings of $199,374 for Multisystemic therapy, it is not at all unlikely that a client-funded RTC or therapeutic boarding school could similarly show a savings associated with placement in their program. Therapeutic boarding schools, given their focus on academic achievement, are in a solid position to show that participation in their programs results in overall savings. However, to date this type of research has not been conducted extensively within the industry.

Mixed Methods

Mixed methods research combines both qualitative methods and quantitative methods within a single study. Creswell (2009) argues that utilizing both methods concurrently provides a number of advantages. Among these advantages are that mixed methods research capitalizes on the strengths of both methods, allows researchers to address complex social problems, provides an opportunity for researchers with diverse background to work together, and provides more insight into research problems. Creswell argues there are four aspects that need to be considered when designing a mixed methods study: a) timing, b) weighting, c) mixing, and d) theorizing. Timing refers to whether one type of data is collected first or both are collected concurrently. Weighting concerns the amount of focus placed on one method or the other, while mixing refers to the degree of connection between the qualitative and quantitative data (usually in the discussion section). Finally, theorizing has to do with the degree to which an overarching theoretical lens is guiding the collection of data.

Creswell (2009) also notes the way researchers address these aspects leads to the adoption of one of six common mixed method designs. These six designs are: a) sequential explanatory, b) sequential exploratory, c) sequential transformative, d) concurrent triangulation, e) concurrent embedded, and f) concurrent transformative. Only one study was found that used mixed methods to evaluate family therapy in adolescent residential treatment. Harper and Russell (2008) used this method to investigate perceptions of family involvement in a wilderness therapy program. These researchers used a concurrent triangulation design in their study. This specific design is characterized by collecting qualitative and quantitative data at the same time, and then comparing the two databases to determine how well one set of data concurs with the other (Creswell, 2009).

Harper and Russell's (2008) study was intended to demonstrate that including the family in treatment improved outcomes and reduced the risk of mistreatment. These authors interviewed 14 families during the qualitative phase and surveyed 50 parents and 35 adolescents during the quantitative phase. Although the authors intended to evaluate the role of family involvement, the interviews produced data focused more on the parent's perception of their child's treatment and their own experience while the child was away. For example, one of the themes was "crisis abatement," which reflected the parent's desire to stop the adolescent's downward spiral. This desire contributed to their making the decision to enroll their child in the program. The quantitative phase of the study produce only one significant result, which was that the adolescents rated the family's functioning as better after the program compared to when they entered the program. This study conducted by Harper and Russell represents an initial attempt to extend research in this field beyond what can be accomplished with qualitative or quantitative research methods alone.

Clinical Aspect

Mixed methods research has been growing in popularity over the last decade and can be used effectively to promote family therapy in adolescent residential settings. Using a mixed methods approach provides a means to gain a greater understanding than is available through either qualitative or quantitative methods alone. Given the complex issues that surround family therapy in adolescent residential settings, mixed methods research should be used to investigate research problems. Although this approach continues to evolve it can already be used to better understand the relationship between family involvement and outcomes, factors that make family therapy effective in such settings, and barriers to implementation.

A number of possibilities exist for accomplishing this purpose. For example, the qualitative study described above regarding best practices could be modified to include a quantitative component. In such a study the researcher would employ a sequential exploratory design by first using the Delphi method to arrive at a set of best practices. After determining a set of best practices, the researcher would work with a program to adopt the best practices and gather quantitative data aimed at showing increased effectiveness.

Another possibility could be to conduct a sequential explanatory study wherein the researcher first collects quantitative data about family participation during their

child's stay. This would include descriptive data covering family member demographics, frequency of attending sessions, and compliance with treatment recommendations. The data would be further analyzed to determine if certain groups have lower participation than other groups. These groups would then be targeted for qualitative inquiry to determine barriers to participations. The action research methods described above could also be used to generate solutions. Likewise, a researcher could address the qualitative component by conducting an ethnographic study wherein they embed themselves within a program and observe interactions between the staff, therapists, administrators, and the low participation families. They would also conduct interviews with the key individuals involved in the program, such as the therapist and the members of the low participation family. Interviews would be augmented with field notes obtained through direct observation of clinical meetings, as well as conversations in the hallway and at the front desk (Mendenhall et al. 2014). This type of data would then be used to explain the observations that were made during the analysis of the quantitative data.

Financial Aspect

To date, mixed method approaches have not been applied to costs related to adolescent residential treatment. However, this type of analysis could be conducted rather easily and might offer even more support for the inclusion of family therapy in adolescent residential settings. Because mixed methods are an extension of the methods already outlined above, the methods for conducting a cost analysis would be the same as what has already been described. As Christenson and Crane (2014) noted in their paper, researchers can begin to advance cost evaluations by simply adding cost data to what they are already doing. As a brief example a researcher could conduct a sequential exploratory study wherein qualitative data is first gathered about parent perception of treatment and outcomes. The researcher might even consider including some of the questions outlined above concerning decision making around costs. This could be followed by a quantitative analysis of outcomes. During the process the researcher could gather and report cost data, and even employ some of the cost analyses described above. As has been highlighted above, it is anticipated that the benefits of providing the treatment would more than offset the costs incurred.

Summary

It is evident that family therapy researchers, with clear knowledge of treatment programs and qualitative, quantitative, and mixed methods designs, will have a significant role in investigating treatment outcomes for adolescent residential treatment. This has important ramifications for those who practice MFT, since such research can be used to promote MFTs inclusion in this area of practice. Furthermore, increased research and integration would ultimately strengthen the place of family therapy in adolescent residential settings. This effort will require the use of a scientist-practitioner approach, with emphasis on the clinical and financial aspects of the work.

In terms of qualitative analysis, the limited research available focuses primarily on parental feedback about how they were treated in these programs. Future studies should address questions regarding the actual treatment process and include not just the parent's perspective, but also the perspectives of the adolescent, siblings, and other family members. An example provided above described how action research, which involves collaboration, immediate application, and discussion of concerns and engagement, could be used to generate solutions in government-funded RTCs. Additionally, the Delphi method could be used to generate a set of best practices, which could then guide interventions and additional research. Lastly, incorporating different stakeholders, such as insurance companies, third party payers, and politicians into focus group research could help clarify their perspectives on coverage and may assist those crafting legislation for family therapy funding. Such findings from qualitative analysis could provide the foundation for additional quantitative studies.

Quantitative research is more prevalent in the literature and demonstrates that family involvement is an important factor in outcomes. However, more quantitative research is needed to establish efficacy, and more importantly, determine what makes family therapy effective in these settings. Examples of quantitative studies included a descriptive study of characteristics for participants who are, or are not, involved in family therapy and the use of a non-equivalent control group design to begin to atone for the lack of a comparison group in previous research. Also, research with randomization could be conducted in wilderness therapy programs by having different groups receive basic or enhanced family involvement. The ABAB single subject design could also be used to experimentally determine the effect of family therapy. Finally, the financial aspect could be investigated thorough cost-benefit analysis, which would need to include both indirect and direct costs and benefits.

The application of mixed methods has been limited, and the one study that is known to have been conducted focused on evaluating parents' perceptions of their child and their involvement in the program. The forte of this method involves combining the strengths of both methods to generate expanded results. Examples provided herein included a sequential exploratory design using the Delphi method as the basis for quantitative analysis, and using

descriptive data about families to launch action research or an ethnographic study. Mixed methods will ultimately be used more and more to obtain greater understanding than what is available through qualitative or quantitative studies alone.

In conclusion, despite the research that has been done, the literature on family therapy in adolescent residential settings is underdeveloped and can be advanced through the application of the methods outlined above. Researchers should use the information in this paper as a starting point for developing well thought out studies that will further advance the use of family therapy in adolescent residential settings. This could be accomplished by first conducting qualitative studies to help generate research questions, though this is not a required first step since there are already numerous unaddressed researcher questions that can be answered with quantitative methods. Furthermore, researchers, especially MFT researchers, will need to embrace the scientist-practitioner model to address the gaps in the literature since the majority of the stakeholders in this field are outside of academia. As the amount of research on family therapy in adolescent residential settings continues to expand the use of related techniques should become not only more effective, but efficient as well.

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