Clinicians' Perspectives on Innovative Naturalistic Observations of Families in Therapy

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S. N. Mangelsdorf^{a,b,c}, R. Conroy^{c,d}, M. R. Mehl^e, & E. Alisic^{b,c,f}

^aSchool of Psychological Sciences, Monash University, Melbourne, Australia,

^bMonash University Accident Research Centre, Monash University, Melbourne, Australia,

^cMurdoch Children's Research Institute, Melbourne, Australia,

^dMelbourne School of Psychological Sciences, The University of Melbourne, Melbourne, Australia,

^eDepartment of Psychology, University of Arizona, Tucson, United States of America

^fPresent address: Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia

Abstract

Objective: What happens in the home is a key topic of psychological therapy with families, yet direct observation of this behavior is rarely feasible. Self-report measures can offer insights, however some aspects of “normal” family life can be difficult to articulate. The Electronically Activated Recorder (EAR; Mehl, 2017) is a naturalistic observational audio-recording app that has been used with families in research settings, yet it has never been adapted for therapy. The present study aimed to explore psychologists' perspectives on the use of naturalistic observational methods (especially the EAR) within therapy, as well as their current use of such methods.

Methods: Registered psychologists ($N = 69$) from seven English-speaking countries completed an online survey. Seventeen of these psychologists also listened to five audio snippets and completed an interview focusing on how the EAR recordings might add to their understanding of a fictitious clinical case, as well as any barriers to use of the EAR.

Results: Naturalistic observation was scarcely used in routine practice by these psychologists who work with children, parents and/or families. Barriers to use included that these methods might be impractical, ethically risky, invalid, unnecessary and potentially uncomfortable for clients and clinicians. However, clinicians also highlighted the potential benefits of these methods for informing formulations, hypotheses and treatment planning through a multimethod approach. The paper discussed management of ethical and practical issues.

Conclusions: The EAR represents a promising tool for therapy with families, however ethical and practical issues must be considered prior to its utilization in clinical practice.

Keywords: family, therapy, smart phone apps, naturalistic observation, EMA

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Families access therapy for a variety of reasons, including stress, conflict, and mental health issues (Heafner, Silva, Tambling, & Anderson, 2016). Often, family members approach therapy with differing levels of willingness, openness and insight. For example, parents may differ in their perspectives on the necessity and perceived efficacy of therapy, and entrenched family patterns may hinder some members from sharing their perspective. Young children may be still developing higher order cognitive, metacognitive and verbal skills, and emotional literacy, which are necessary for articulation of internal states (De Young, Kenardy & Cobham, 2011). Working with families is therefore complex, as differing needs, perspectives and skill levels are continuously balanced, in real time.

Psychologists are trained to use clinical interviewing, observations and self-report measures to obtain information from and about clients throughout the process of assessment and treatment (e.g. Australian Psychology Accreditation Council, 2010). Self-report measures and clinical interviewing are feasible where clients possess both verbal skills and insight. For young children, observations and parent report are commonly utilized to assess behavior (Balaban, 2006). In addition, therapists can use observations of family interactions within the therapeutic space for indications of family dynamics at home.

However, it is well known that the method of collecting data may influence the data collected itself (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Both self-report measures and observations may be subject to the social desirability bias, where individuals consciously or unconsciously aim to portray themselves in a positive light (Oberzaucher, 2017). Parents may seek to protect a “good parent” self-image, while also aiming to communicate the severity of their family problems (Bornstein et al., 2015). This has implications for therapy, which relies upon the validity of information provided for the accuracy and efficacy of formulation and treatment planning. In addition, the clinic environment itself may influence how families behave in idiosyncratic ways.

In contrast to observations within a clinic or laboratory, naturalistic observations are methods in which the family is observed directly or through audio or video recording. As early as the 1970s, methods of using naturalistic observation with families were put forward (Dahl, 2017). The rationale for these methods was that naturalistic observations gave the observer a sense of the family *in situ*, so that typical dynamics could emerge. At the time, these naturalistic methods were costly, time-consuming, and somewhat intrusive, with observers often physically present (e.g. Steinglass, 1979). However, these approaches were believed to provide an alternative perspective – that of the observer – which could increase validity and illuminate aspects of family life that may not otherwise be easily or readily reported (Oberzaucher, 2017; Richer, 2017). For this reason, a multi-informant, multi-method approach with families is considered best practice (Janssens, De Bruyn, Manders & Scholte, 2005).

More recently, with the advent of smart phone apps, there has been an influx of naturalistic data methods in research, which overcome several of the practical challenges presented by older recording methods, and may be minimally intrusive as smart phones are now part of everyday life (Miller, 2012; Repetti, Wang & Sears, 2013; Timmons et al., 2017). In this article, we consider a smart phone app, the Electronically Activated Recorder (EAR; AKA the “Android EAR” app, formerly, in the previous but now retired iOS implementation, the “iEar” app; Mehl, 2017). The EAR is a naturalistic observational tool used for validated intermittent ambient audio recording in research settings. It can automatically and imperceptibly record short, regular “snippets” of audio information, e.g. 30 second snippets every 5 minutes. The app is optimized to collect data for high frequency behaviors in an

unobtrusive way. Past EAR studies found that, on average, participants reduce or cease talking about the recorder within the first 2 hours of wearing the device (Mehl & Holleran, 2007). The intermittent ambient audio sampling method therefore appears to be less intrusive than continuous recording as the context of interactions is not always captured, and there is no observer present (Manson & Robbins, 2017).

Until now, EAR data have only been used as research data, quantified and aggregated across many families or individuals (Mehl, 2017). For example, the EAR has been used to explore parental depressive symptoms in daily life (Slatcher & Trentacosta, 2011), family conflict (Tobin et al., 2014), and naturally occurring conversations about a child's serious injury (Alisic et al., 2017). However, consideration of EAR data for individual families provides information that may be useful in clinical contexts, including for therapy (Mangelsdorf, Conroy, Mehl, Norton, & Alisic, 2018). The EAR could be used for investigation of antecedents and consequences of a behavior/interaction (e.g. Tobin et al., 2014), assessment of family functioning (e.g. emotional tone, conflict, time spent together; Alisic et al., 2017), exploration of self-awareness (e.g. Vazire & Mehl, 2008; Sun & Vazire, 2019), and recording clinically-relevant behaviors that cannot be elicited in session (e.g. Slatcher & Trentacosta, 2011).

The possibilities for using the EAR in a therapeutic context with families have not yet been explored, however. While researchers can speculate on the EAR's potential use for psychological therapy, it is important that this does not fall into the gap between research and practice, where it has theoretical but not practical use (Weisz, Krumholz, Santucci, Thomassin, & Ng, 2015). Hearing the perspectives of clinicians in the field is critical to assist with identifying ethical and practical issues that are relevant to psychological practice. We were interested in determining what methods psychologists currently use within therapy with families, what value they may see in naturalistic methods, and how psychologists might creatively adapt the EAR for use in therapy.

The research questions of this study were as follows:

1. How and why do psychologists use naturalistic observation in therapy with families?
2. How could naturalistic observation (e.g. the EAR) be used in therapy with families?

Method

Design

The present study was a comprehensive, mixed-method study, including data from both surveys and interviews with psychologists. Ethical approval for this project was obtained from the Monash University Human Research Ethics Committee (number 9081).

Participants

Eligibility and recruitment. Psychologists recruited were required to meet the following inclusion criteria: a) holding current registration as a psychologist (including provisional registration) with the relevant national registration board, b) working with families (with at least one adult and one child under 18 years of age), children and young people under the age of 25 years, and/or parents. While the study was originally open to Australian psychologists only (56.52% of the sample), participants were subsequently also recruited from countries which met the English language requirements of the Psychology Board of Australia (Psychology Board of Australia, 2015): The United States or Canada (17.39%), United Kingdom (13.04%), South Africa (5.80%), New Zealand (5.80%), and the Republic of Ireland (1.45%). This was done to reach a wider range of psychologists, both to explore a potentially broader range of perspectives, and for more efficient recruitment.

During the recruitment period (November 2017 to May 2018 for Australian participants, March to May 2018 for participants from other countries), clinicians were invited to participate in the study via personal contacts at psychology clinics and universities, the Australian Psychology Society website, relevant Facebook groups and emails circulated to clinics and individuals where family work was evident. For example, we emailed clinicians and some clinics who, in their online listing, included keywords like “parenting”, “family”, “children”, or “adolescents” in their list of client populations. Psychologists were not compensated for their participation. However, Australian participants were able to claim their time spent on the study as part of their Continuing Professional Development hours, if deemed relevant.

One hundred and six psychologists commenced the survey; 3 declined consent, 5 were ineligible, and 29 completed less than 40% of the survey. For the description of results, we included participants whose surveys were at least 60% complete, that is, surveys that contained demographic and background information, with at least the section regarding naturalistic observation completed. This comprised 69 surveys that were at least 60% complete (including 57 fully completed surveys that included specific evaluation of the EAR). Twenty-two of these psychologists consented to be contacted about an interview, 17 of whom completed the interview.

Procedure

Survey. Clinicians were invited to fill out an anonymous online Qualtrics survey and provided informed consent at the beginning of the survey. The background survey questions requested psychologists to describe their current role, client group and therapeutic approach. The survey then provided brief examples of self-report (e.g. questionnaires, thought records, diaries, parent report) and observational methods (e.g. roleplays in session, interaction tasks, recordings) before clinicians were asked to provide a short description of their use of these methods in clinical practice with child or adult clients. We asked participants how they imagined that naturalistic observation (e.g. audio recordings, home visits) could add to their current clinical work if it were available, as well as the more general potential benefits and downsides of such approaches. In the final section, clinicians were asked to read information about the EAR, listen to a sample 30-second audio snippet and describe their initial impressions of the EAR in an open-ended way. They then rated its potential utility and feasibility for use in psychological therapy on a four-point Likert scale.

Interview. At the end of the survey, clinicians were asked to provide an email address and/or telephone number if they consented to be contacted about participating in an interview. If so, they subsequently provided written informed consent and participated either in person or via video call within a few weeks of completing their survey. This interview was audio recorded for transcription purposes. First, a case scenario was presented, about which interviewees were then asked a series of questions (e.g. “What are your hypotheses about this family?”). The scenario described a young mother being referred for outpatient psychological therapy for stress and anxiety following her four-year-old daughter’s hospital visit due to an accidental injury. The scenario included the mother, her husband, the four-year-old, and her sibling attending the first psychology session and agreeing to an EAR recording at home, following this session. Five de-identified and slightly distorted EAR recordings were then presented in order to simulate this family’s home recordings. Through a semi-structured interview, clinicians were then asked to describe their perspectives on the information gained from the EAR recordings that could potentially be used clinically (e.g. “What clinical information did you gain from the recording?”), as well as potential uses or barriers to use within therapy (e.g. “What would you do with this information? What questions would you ask the family?”).

Recordings and transcripts that were used in both the survey and interviews were taken from the Ear for Recovery study (see Alisic et al., 2015, 2017). These families included children who had sustained a serious injury and were hospitalized for at least 24 hours at the Royal Children's Hospital Melbourne. In the Ear for Recovery study, the children wore a pocket-sized audio recorder (iPod touch), which contained the EAR app, for a two day period, as a measure of family communication. For the included families, we had relevant demographic, injury, questionnaire and EAR data, as well as their consent to use the data in future research.

Analyses. We used descriptive analyses to synthesize the quantitative survey data (with SPSS Statistics version 24). The interviews were transcribed verbatim into Microsoft Word and both the interviews and short-answer survey responses were coded using NVivo Pro versions 11 and 12 for Windows. Given the novelty of the EAR method and likely varied contexts and opinions of psychologists, we adopted an interpretive description approach to guide the qualitative analysis. Using this inductive approach, we were able to broadly explore the facets of naturalistic observation that clinicians deemed important and salient, with a view to derive clinically-relevant concepts (Thorne, Reimer Kirkham & O'Flynn-Magee, 2004).

Quotations provided below were edited for minor spelling and grammar errors, and participants were assigned a two-digit ID number. Quotations are specified for survey and interview responses by the presence of an "s" or "int" prior to the participant ID, respectively. For example, a quotation from participant 7's survey response would have the ID s07, while their interview would be represented by int07.

Results

Sample Characteristics

Table 1 shows the background data for this sample of psychologists ($N = 69$), including their areas of specialist endorsement, practice settings, and therapeutic approaches, as well as their typical clients' age groups and presenting problems.

The participants were predominantly clinical psychologists working in private practice, with adolescents, parents and/or children over 5 years, within a Cognitive Behavior Therapy (CBT) framework. Chi-squared analyses ($\alpha = .05$) indicated that those who completed the interview did not differ from the full sample of survey respondents in areas of endorsement, client age group, settings, presenting problems of clients, therapeutic approaches, therapeutic approach, or ratings on views about the EAR. The only exception was that the interviewed participants included significantly fewer psychologists who saw clients with neurodevelopmental disorders ($n = 4$, compared to $n = 27$ for the full sample), $\chi^2 = 4.17$, $p = .041$.

Table 1

Background Information for Psychologists and their Clients

	<i>n</i>	<i>%</i>
<i>Endorsement</i>		
Clinical psychologists	40	58.0
None/provisional	19	27.5
Counselling psychologists	7	10.1
Clinical neuropsychologists	4	5.8
Educational and developmental psychologists	4	5.8
Health psychologists	1	1.4
<i>Setting</i>		
Private practice	47	68.1
Community outpatient	17	24.6
Hospital outpatient	9	13.0
School setting	7	10.1
Hospital inpatient	4	5.8
Forensic/legal setting	3	4.3
Clinical research	2	2.9
Supervision of psychology students	2	2.9
Crisis team	1	1.4
Disability support services	1	1.4
Non-government organization	1	1.4
<i>Therapeutic Approaches</i>		
Cognitive Behavior Therapy	61	88.4
Acceptance and Commitment Therapy	34	49.3
Family Therapy	27	39.1
Other therapies	24	34.8
Psychodynamic approaches	18	26.1
Dialectical Behavior Therapy	16	23.2
Mindfulness	7	10.1
Eye movement desensitization and reprocessing	3	4.3
Systemic therapy	3	4.3
<i>Client Age Group</i>		
Adolescents and young adults (aged 13 – 25 years)	63	91.3
Parents	58	84.1
Children (aged 5 – 12 years)	49	71.0
Non-parent adults	44	63.8
Couples	25	36.2
Infants and toddlers (aged 0 to 4 years)	23	33.3
<i>Client Presenting Problems</i>		
Mood disorders (depression, anxiety, bipolar)	57	82.6
Trauma-related disorders (e.g. PTSD, adjustment)	46	66.7
Disruptive, impulse control and conduct disorders	33	47.8
Obsessive-compulsive disorders (e.g. OCD, hoarding)	33	47.8
Neurodevelopmental disorders (e.g. autism, ADHD)	31	44.9
Personality disorders	29	42.0
Substance use/addictions	25	36.2
Feeding and eating disorders (e.g. anorexia nervosa)	18	26.1
Sleep-wake disorders (e.g. insomnia)	16	23.2
Somatic symptom disorders	15	21.7
	<i>n</i>	<i>%</i>
<i>Client Presenting Problems (cont.)</i>		
Gender dysphoria	14	20.3
Dissociative disorders	10	14.5
Elimination disorders (e.g. enuresis)	10	14.5
Psychotic disorders (e.g. schizophrenia)	10	14.5
Sexual dysfunctions/paraphilia	7	10.1
Neurocognitive disorders (e.g. Alzheimer's disease)	5	7.2

Note. *N* = 69, presenting problem categories were taken from the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Version* (American Psychiatric Association, 2013).

Current Use of Naturalistic Observation

Figure 1 depicts the clinicians' frequency of use of self-report measures (not including clinical interviews), in-clinic observations and naturalistic observation (e.g. audio recordings, home visits) for child and adult clients. Most respondents reported never using naturalistic observation with either children or adults, self-report measures were used at least once in an episode of care by most respondents, and in-clinic observations were conducted every session by most. Those who did use naturalistic observation commonly reported doing school or home visits (27.54%, $n = 19$), and some audio or video recordings from home (7.25%, $n = 5$). Regarding self-report measures, participants most commonly used standardized questionnaires or screeners (75.36%, $n = 52$) and/or thought records or diaries (66.67%, $n = 46$). Lastly, the most common form of in-clinic observations was roleplays (63.77%, $n = 44$). There was a general trend towards psychologists being more likely to use observational methods with children than with adults.

Some clinicians reported using techniques that did not fit within the presented definitions (i.e. naturalistic observation being that conducted within a natural environment). For example, when asked to state which *naturalistic* observation methods they used, seven participants described in-clinic observations (e.g. "*We do this via observing family interactions in the clinic*", s08). Similarly, regarding *in-clinic observations*, both structured (e.g. roleplays) and unstructured (e.g. "*All behavior is observed*", s67) observations were reported, highlighting the range of interpretations of these descriptors. Finally, six participants included play, drawing and other projective testing as examples of self-report measures.

Figure 1. Frequency of use of data collection methods in clinical settings per child (striped) and adult (black) client, $N = 68$.

Perspectives on Naturalistic Observation

Initial impressions of the EAR. Across the survey responses, participants most commonly showed one of three responses; that the EAR might be “*useful*” (s54), “*interesting*” (s65), or “*intrusive*” (s14). When simply asked “How likely would you be to use the EAR in your clinical practice? (With training)”, the most popular response on the survey was “Unsure” (35.1%), followed by “Extremely Unlikely” (24.6%; see Figure 2).

Figure 2. Responses to question “How likely would you be to use the EAR in your clinical practice? (With training)”, $N = 57$.

To provide more detail, Figure 3 summarizes responses to several multiple-choice questions about the EAR. The survey results suggested that the respondents viewed naturalistic observation and use of the EAR as potentially useful for therapy, but had doubts about its feasibility and ethical considerations (see Figure 3).

Figure 3. Initial impressions of the (A) utility and (B) feasibility of using the EAR in therapy, N = 57.

The following sections integrate qualitative findings from the short-answer survey responses as well as the interviews.

Potential downsides of naturalistic observation. Considering the relatively low numbers of psychologists using naturalistic observation in their practice, we first consider the downsides of using naturalistic observation. Psychologists reported that naturalistic observations may be impractical, ethically risky, invalid, unnecessary and potentially uncomfortable for clients and clinicians. For each of these issues, we start with participants' considerations regarding naturalistic observations in general, followed by their thoughts specific to the EAR.

Naturalistic observations are impractical. Some of the most common reported downsides of naturalistic observation were the time taken to plan and interpret observations, as well as any potential cost. Psychologists described trade-offs needing to be made between time, cost and benefit to the client, for example one psychologist wrote that they “*would have wanted to complete a home visit with one family, but the logistics and requirements to organize it outweighed using a play-assessment in the clinic*” (s01).

The policies of the work setting were also taken into account. In addition, private practice psychologists working independently were particularly wary of practical considerations, for example: “*currently in private practice as a contractor I never go off-site as there aren’t any real procedures in place to assist with this, e.g., pricing, fees for travel time, etc.*” (s04).

Regarding the EAR, psychologists reported that it would be difficult to find time to review audio snippets both within and outside therapy sessions. One interviewee stated, “*Who’s going to spend the time? A therapeutic session is typically around fifty minutes to an hour and just setting up the device and explaining things, it’s gonna take me a good chunk of the hour and going back and analyzing and going over it, is gonna take me some very useful, important time that I could otherwise be spending with the family, as opposed to the recording*” (int22).

Naturalistic observational data may not be valid, useful or necessary. Several psychologists questioned whether naturalistic observations were really a better approximation of reality compared to self-report and in-clinic observations, especially due to observer effects. One participant wrote, “*the observer can’t be merely observing but likely has an unknown impact on the behavior observed*” (s34). Psychologists reported that it might be difficult to determine whether client behavior was truly natural or affected by the knowledge that they were being observed. Clinicians also reported that naturalistic data could be unreliable and subject to situational factors.

Some psychologists further reported that self-report measures and in-clinic observation may be sufficient sources of information, for example, “*I do see how such observation could be beneficial, though I do not see it as critical*” (s57). One participant questioned, “*Is the objective reality always as important as the patient’s subjective reality?*” (s60), thus implying that validity or accuracy may not always be a goal of therapy.

A few participants reflected on the potential real-time effects of being recorded. One participant tentatively suggested, “*it could help people to stay in control of their behavior as they are aware they are being recorded?*” (s13), while another participant questioned whether these types of effects would be sustainable – “*We understand that clients come to us with problems. The EAR gives us the opportunity to ‘police’ them and I can’t help but wonder if the idea that they are being recorded will positively alter behavior - see Hawthorne experiment. This may be the only benefit, but will it be sustainable without ‘Big Brother’?*” (s59).

Clinicians suggested that the short audio snippets recorded by the EAR would not be useful for all settings and they would not use it if they felt it was irrelevant. They also noted that the context of snippets may be hindered by the snippet length and the lack of visuals. Some reported that the recording quality needed improvement in order to minimize background noises and enhance the clinician’s ability to distinguish sounds.

“*Not having the visual there was a little bit frustrating because you could hear things, and you picture things in your mind, but you may not be accurate,*” (int39).

“The reason 30 second snippets are the default in EAR research is that it makes it extremely difficult to identify the interaction and context. These are critical for clinical utility,” (s34).

There were a few participants who therefore wrote that they believed the EAR was suitable for research only - *“seems more useful in sampling behavior/interactions for research than therapeutic intervention,”* (s23).

Naturalistic observation may be too confrontational for clients. Psychologists noted that, for some clients, confronting certain patterns and trends within their life could carry guilt and shame. Therefore, they noted the importance of the readiness of the client to enter into this process through their own reporting within therapy.

“Many clients are not yet ready to reveal or acknowledge their own contribution to maintaining a presenting complaint and that is valuable information in itself. The audio/video recordings may thus, make the client feel exposed prior to being ready and often these discomforts and boundaries can be observed in how the client presents in therapy, rendering the video/audio recording not as valuable, rather just as additive collateral to strengthen clinical hypothesis” (s52). In addition, it was suggested that using recording equipment may carry stigma with it and decrease openness with others present.

Naturalistic observation poses an ethical risk. Within the ethical considerations reported, psychologists were primarily concerned about privacy and confidentiality and difficulties in obtaining consent. For example, one participant stated that naturalistic observations may *“be seen as an invasion of privacy”* (s59). More specifically, home visits posed a potential physical risk for the clinician, as well as looser boundaries as clinicians are welcomed into an informal, home environment.

Psychologists highlighted the importance of informed consent if using EAR recordings within therapy. They suggested that consent could be gathered from all family members and that care should be taken to ensure no coercion, as one participant wrote, *“so I would be happy to recommend it, but would never push it on a family, and would want to make sure that everyone gives informed consent first”* (s14). They reported that it would be important to *“present a strong rationale for its use before suggesting it”* (s69) and ensure that its utility was balanced with ethical considerations, for example, *“I think you need to balance between using it as a source of information, and potentially being a little invasive. You know, you don’t want to err too far onto the side of just listening to everything that they’re doing”* (int38).

Psychologists noted that EAR data in particular could also be misused by clients intending to portray others in a certain light or simply share information inappropriately.

“And then there’s the problem of legal issues coming up like the couple decide to divorce, and they call you to testify about child custody. You have data that one of them thinks is favorable so they tell their lawyer about it, then your data get subpoenaed” (int23).

Clinicians also highlighted the need for more trials in different settings, clear therapeutic outcomes and a clear process of using the EAR prior to its adoption within clinical settings.

“I wouldn’t ask my clients to use a tech like this in therapy unless I had some empirical evidence of improved treatment efficacy,” (s35).

“So, I think you’d need to publish some or collect some data on different settings,” (int23).

“If it is easy to use, and the result format gives clear guidelines, then it could be useful,” (s29).

Naturalistic observation places additional strain on the clinician. Several clinicians also reported the additional strain naturalistic methods may place on the psychologist. For example, clinicians might need additional training for *“skills in recording observations accurately and systematically”* (s21), or might simply find that it is *“difficult to get client to agree and carry out”* (s65). Naturalistic methods were also reported to have a lack of control and structure, and the clinician would need to pay attention to ethical considerations, boundaries, and *“taking care not to make assumptions”* (s56) based on naturalistic data.

Potential benefits of naturalistic observation. Despite the downsides outlined above, psychologists reported many potential benefits of naturalistic observation. These benefits appeared to relate mainly to the assessment and diagnosis process in three ways: through providing the clinician with a deeper and richer understanding of the client and their environment, through the use of a multi-method approach, and to provide evidence to test hypotheses. In addition, psychologists suggested that naturalistic observational methods might enhance treatment and that naturalistic observations might occur in a less stressful setting for clients. These themes will shortly be discussed in turn, again commencing with participants' considerations regarding naturalistic observations in general, followed by thoughts specific to the EAR. The following quote summarizes these themes.

“[Naturalistic observations] provide a more comprehensive assessment process in which information is gathered across multiple contexts. This is likely to enhance formulation and may lead to hypothesis generation. Formulations may therefore be more reliable and treatment plans can be tailored to the individual's setting, i.e., if the clinician has observed the naturalistic setting, he or she may be able to provide more specific, targeted recommendations / treatment strategies.” (s06).

Naturalistic observation enhances understanding of the client's context. Psychologists suggested that the clinician's understanding of the client would be enhanced in some general and specific ways, for example, by providing a *“better sense of who the client and family are, better understanding of the context they live in”* (s24) and the ability to *“increase the quality and understanding of the client in therapy, allow an observation to be revisited for further depth and insight, enable greater understanding of roles and interactions in families, allow insight into the real world and context of where the client operates and appreciate the intensity of their situations”* (s21). Another participant reflected, *“Every time I have done a home visit (which I did sometimes when working for a hospital) I wondered why I didn't do this every time I met a family. Felt like I understood them so much more - their context. Helps with triangulation and formulation.”* (s24).

More specifically, clinicians highlighted that observing the home environment, routines and dynamics would broaden the perspective of the clinician and add to the formulation. This, in turn acknowledged the individual nature of each client's situation. *“From a therapy perspective, there is also the benefit of seeing how they interact with people in their home, respond to unexpected situations/people, a chance to understand their routines, orderliness/structure or chaos of the home environment and it increases the ease of introducing new routines directly in their environment”* (s13).

Regarding the EAR, psychologists suggested that it could be useful for *“measuring family dynamics”* (s05) and generally gathering information about the home context, for example *“using snippets of family interactions to get objective data regarding family interactions, behavior problems and strategies used”* (s12).

Naturalistic observations can complement self-reports. Participants suggested that combining self-report and naturalistic observation might enrich assessment through observing clients within and outside therapy — *“Information gathering can occur in more than one context, thereby enriching the assessment process”* (s06). It was suggested that these different modes could be compared to assess and influence a client’s level of self-awareness. *“Obviously additional material in any format is useful, especially if it gives a client insight into hearing their own behavior and observing the effect this has on their significant others”* (s29).

Compared to reporting alone, respondents commonly described the *“potential for greater ecological validity”* (s06) of naturalistic observation; that they could see *“how things really are”* (s05). They felt that naturalistic observation was, simply, more “natural”, and that this might help clients to feel more relaxed, and act more authentically than in therapy. One participant wrote that using naturalistic observation *“you can see things that the client/s might not know/can't/won't talk about”* (s08). Finally, naturalistic observation was considered by some to be *“potentially less biased”* (s35) than self-report measures, and was also described as *“objective rather than influenced by client’s subjective view”* (s53).

The interview participants reported that in the case scenario, the EAR recordings added to the other clinical information by providing examples for discussion which may not have been otherwise brought up in therapy.

“...a lot of these sort of situations may or may not have been brought up in therapy, because I think often with these stressors that are present during the week, they feel incredibly stressful at the time, but then you can kind of forget about them and you don’t really talk about them in therapy, even though they’re actually quite important in showing, I suppose, where are those pressure points when you’re arguing, when you’re having arguments within the family and how they can really elevate your stress levels,” (int42).

The recordings also provided further information about the family’s stress levels, which appeared to go beyond what had already been reported.

“You know first I read the case study and I was like “oh, this person’s stressed” but when you hear the clips it’s like ‘oh’. It adds to how severe the stress might be within that family and how that’s affecting the way they’re interacting,” (int36).

Naturalistic observation provides evidence to test hypotheses. Participants suggested that naturalistic observation *“provides great evidence-based information into their everyday lives”* (s29) and can *“help test out a greater number of hypotheses about the presenting problem and/or diagnosis so that it could better inform effective treatment,”* (s14). Other participants wrote of the utility of seeing a person in multiple contexts and overcoming recall bias through direct observation to *“confirm hypotheses from the clinical setting,”* (s57).

Hypothesis testing was an approach some interviewees applied to the case example, for example: *“...what I observed is that the parents ... it kind of fits with a bit of a hypothesis that they aren’t really working together, that there’s a bit of a kind of criticism from each other to each other,”* (int16). An interviewee suggested that the data could be useful, *“potentially very useful data, because without that, you’re just guessing, as a clinician...[...]... But I also think that it could be an incredibly efficient means of working out some of the patterns that might be going on,”* (int07).

Naturalistic observation can enhance ongoing treatment and treatment planning. Clinicians described the potential to *“develop better understanding so that interventions can*

be more tailored,” (s17). Some psychologists suggested that the comprehensive assessment offered by naturalistic observational techniques could inform treatment targets and therefore treatment planning as a whole. More specific interventions were suggested including using observations as *“opportunities to give immediate or delayed feedback”* (s33), discussion (e.g. *“They may provide useful information for us to discuss within the therapy space,”* s38) and even real-time interventions. It was suggested that this could potentially support generalization of therapy to everyday life.

Participants suggested using the EAR to *“...review the data with the family in session and use it as a tool to open up discussion,”* (s69). One participant noted how powerful a real-life example could be in framing discussions — *“I mean it’s one thing to talk to parents about that in an educational way but to actually, gently take apart an example from their own life might be quite impactful,”* (int36).

Others suggested that clients may find it useful to both reflect and receive feedback on their interactions, for example *“it is also useful for later reflection with the carer or child regarding what I have noticed in their method of interacting or responding to certain situations, which can then be processed and explored in session,”* (s15).

Naturalistic observations may be less stressful for clients. Participants mentioned that naturalistic observations, particularly home visits, may be more comfortable and less stressful for the client who may be more relaxed at home than in a therapeutic environment, allowing the clinician to *“... see the dynamics of parent-child interactions within the home, where the child may be more comfortable and behave consistently with parent-report than in the clinic,”* (s01). Other potential benefits for clients were that the use of naturalistic observation could increase *“client engagement”* (s25), *“help with willingness to try new behaviors”* (s44) and potentially increase *“client access to treatment”* (s25).

Ideas for use of the EAR in therapy. Participants were asked to comment on management of both practical and ethical issues relating to use of the EAR within therapy. The suggestions related mainly to managing the scheduling of recordings, as well as informed consent and data management. These issues are explored in further detail below.

Optimal scheduling of recordings. Several participants suggested that it might be useful to schedule the EAR recordings around particular parts of the day, for example, *“I would potentially use it in a similar fashion to using a thought record - discuss with the client the periods of their day which are associated with their presenting problems (e.g. work meetings cause anxiety which causes stuttering) and as such have them turn it on during those periods of time. Setting up some sort of diary or schedule for its use would be effective,”* (s15). One participant noted that it would be important to consider the most important times for recording so as to minimize the amount of data collected.

Several participants suggested having recordings at various parts of the day (e.g. *“I’d probably want snapshots at various times of the day, so I wouldn’t want to be getting it all in the morning, for example, and I think you’d want snapshots at various times of the day over ideally at least a couple of weeks”*, int06). Participants also reported they would suggest recordings at least on the weekend, or a mixture of weekend and weekday days (e.g. *“...if you have school-aged children, for example, you’d want it to be on the weekend to see what the structure and routine is like at home but also what the stressors are like before school, - like who’s making lunches, who’s getting dressed, what the routine is, if there is one...”*, int26). Participants most commonly suggested that obtaining recordings over two days to one week would be optimal, but many acknowledged that they could not know for sure as it

depended on the family, for example, *“It would probably depend on what the family think and what they think would give a good indication of what’s going on for them as well. I’d probably wanna keep it open and negotiate with the family, if possible...”* (int69).

Taking care with informed consent and data management. Psychologists highlighted the importance of informed consent, ideally from all family members, and that care should be taken to ensure no coercion, as one participant wrote, *“so I would be happy to recommend it, but would never push it on a family, and would want to make sure that everyone gives informed consent first,”* (s14). They reported that it would be important to *“present a strong rationale for its use before suggesting it,”* (s69) and ensure that the EAR’s utility was balanced with ethical considerations, for example, *“I think you need to balance between using it as a source of information, and potentially being a little invasive. You know, you don’t want to err too far onto the side of just listening to everything that they’re doing,”* (int38).

When asked how to approach the consent process, participants highlighted the need for the clinician to ensure that families were well-informed, including that the data management process, rationale, withdrawal rights, and confidentiality were well explained. One psychologist said that clinicians should *“Just be as open as possible...I’d probably wanna do both, have a conversation in the session, and then provide written information for the family to review and think about, have the opportunity to ask and answer questions,”* (int69).

Regarding data management, participants explored the need to ensure recordings could not be subpoenaed or shared beyond the therapeutic space — *“...the recordings are only for therapeutic use, you know that you’re not providing it to them to sort of play to their mother-in-law to say ‘oh, see what he said’, sort of thing [laughs],”* (int38). Others highlighted the importance of the family having control over their data and having clear processes in place.

“...I’m sure, you know, there would be questions around like, ‘can we delete um the audio recordings?’, like ‘how long-?’, like ‘where is it stored?’, ‘where does it go?’, ‘when it’s deleted, is it actually deleted from like, servers?’ ...[...]... it doesn’t sound like this device is something or the app, it’s not something that you can control in terms of turning on and off, around what snippets you can play and, I guess that you can give them control around what they can and cannot delete,” (int42).

“Like I would wanna have my processes really down pat before I suggested something like this, like the storing of the information, how long am I gonna keep it for, all of that kind of thing,” (int69).

Similarly, some interviewees suggested that consent should occur before and after the recordings, *“Well, I think probably the only reasonable way to do it would be to show them the snippets, the recordings and say ‘now, do you again consent to these?’ And I would let them take out the ones that they didn’t consent to,”* (int51). Interviewees also noted the importance of avoiding recording outsiders and gaining verbal consent with extended family, for example *“...if the family’s highly social, like has several people coming into their home at different times of the week, I think I would try to avoid recording when they have outsiders in the house, other than relatives, like grandparents. I would ask them to get the verbal consent of the grandparents after they’ve explained what they’re doing,”* (int23).

Discussion

The present study explored the perspectives on naturalistic observational techniques, especially the EAR, within the therapeutic context. We found that clinicians rarely used

naturalistic observational techniques. When they did, it was often because this was routine within their setting. In summary, while naturalistic observational methods were considered potentially useful and informative by most clinicians, they raised concerns about the practical and ethical considerations of using such techniques, as well as the validity and necessity of the data, and the comfort level of the client(s) and clinician.

Considering and incorporating a new tool within psychological practice requires additional time, training and mental load for clinicians who may already be overwhelmed by present demands in practice. The majority of psychologists within the sample worked in private practice or outpatient settings, which may indicate a sample who lacked team support or processes in place to attempt home visits or audio recordings. Therefore, it is no surprise that psychologists may consider innovative methods an uncomfortable and uncertain prospect. The finding that a quarter of the sample were “extremely unlikely” to use the EAR in therapy, highlights that, for some, their resistance to such methods was strong, without necessarily knowing very much about the tool. More generally, the field of psychological assessment is one that has typically been resistant to change (Groth-Marnat, 2009).

In addition, some psychologists were unsure whether naturalistic data would truly approximate reality or yield useful data. Specifically, those who raised concerns about observer effects likely saw that the value of gaining a different perspective through naturalistic observation was dependent upon the validity of these observations. While observer effects cannot be eliminated, past research has suggested that naturalistic observational methods are unlikely to significantly alter entrenched family rhythms (Jacob, Tennenbaum, Seilhamer, Bargiel, & Sharon, 1994) and that particularly for the EAR, participants tend to habituate to its presence within a few hours (Manson & Robbins, 2017).

Yet, naturalistic methods may not always be indicated, and it is part of the skill of the therapist to discern their utility with each family. For some aspects of therapy, self-report measures may be a sufficient approximation, and it is therefore important to consider the characteristics of the client group and assessment questions in selecting methods. For example, young children or cognitively impaired individuals may find observational methods a useful adjunct to self-report measures (e.g. Brindley, Bateman, & Gracey, 2011), and aspects like warmth may be equally detected by self-report and observational methods (Janssens et al., 2005). Conversely, many parents may not be ready to acknowledge their contribution to the presenting problem, and exploring these issues can be a key part of the therapeutic process that may be hastened by naturalistic methods (Brown, 2008). Therefore, a multi-method approach to therapy is warranted (Janssens et al., 2005).

Psychologists’ views on measurement techniques may also have stemmed from their training, client group or choice of treatment paradigm, which was CBT in most cases. Psychologists appeared to continue to think from these existing frameworks, for example there was a participant who considered using audio recordings much like a thought record. In fact, clinicians commonly described use of the EAR within therapy in terms that might be compatible with CBT, as relevant examples could be used for feedback and discussion within therapy, much like the use of video observation in cognitive therapy for social anxiety disorder (Warnock-Parkes et al., 2017).

While reports of methods currently used in therapeutic contexts were generally consistent with the presented definitions in each category, some psychologists did not clearly distinguish between different types of measures. For example, some clinicians reported their in-clinic observations as “naturalistic” observations, thus indicating that in-clinic behavior was believed to be the same as or representative of behavior in everyday, naturalistic settings.

However, this assumption may be misleading (Dahl, 2017). It could be interesting to explore whether clinicians maintain sensitivity to how foreign the clinical setting may feel for clients and how much clients themselves can monitor or alter their behavior while in therapy. In addition, there have been differences between reported and observed affect in everyday life for individuals diagnosed with Borderline Personality Disorder (Brown, Tragesser, Tomko, Mehl, & Trull, 2014), implying that the impact of the therapeutic setting needs to be accounted for. Triangulation between naturalistic observations and self-report measures may therefore provide added benefits above routine assessment methods (Alisic, Barrett, Bowles, Conroy, & Mehl, 2016; Mangelsdorf et al., 2018).

Regarding the practicalities of using the EAR in clinical settings, more research is needed, especially as these practical issues can often determine choice of method over and above clinical utility (Piasecki, Hufford, Solhan, & Trull, 2007). For example, questions raised about data management, recording quality and a more structured protocol require further exploration. These questions might inform further development of the EAR or other apps for use within clinical settings. Additionally, the psychologists' recommendations for more research and a stronger evidence-base behind naturalistic methods are encouraging, as research has indicated that psychologists are typically more likely to use clinical judgement and client feedback than research to inform their work (Gyani, Shafran, Rose & Lee, 2015).

The ethical issues raised by psychologists were akin to those that have been explored within research settings with families (e.g. Margolin et al., 2005). These considerations are not unique to the EAR method, as wearable video cameras have similar potential application to CBT and ethical considerations which are not "insurmountable" (Murzyn & Williams, 2018, p. 8). Rather, such ethical issues require careful consideration of methodology, rather than exclusion of observational methods altogether. These issues have been discussed elsewhere (e.g. Kelly et al., 2013; Robbins, 2017). As mentioned by one psychologist, a balance is required between ethical, practical and therapeutic factors within therapy. The costs and benefits must be analyzed for each family.

Similarly, the interviewed participants who had more time to reflect on the process and elaborate on their views, did not advocate a "one size fits all" approach, but rather that each family's needs and context needed to be taken into account. They considered that the individuality of each family would guide the rationale for use of the EAR, its frequency of use, as well as how it was discussed and explored in the clinic. If these methods can provide a greater context and quickly enhance the understanding of the clinician, this might have implications for the accuracy of formulations and the consequent efficiency of therapy.

A key focus for the research agenda, moving forward, might be how clients would feel about using naturalistic observational methods in therapy. While EAR research suggests basic feasibility for use with families (Alisic et al., 2017), it is unclear how these findings regarding tolerance for the method might compare with attitudes within the therapeutic space, when families are potentially more sensitive and vulnerable. There is some evidence to suggest that psychologists can overestimate the discomfort clients feel about recordings (Shepherd, Salkovskis, & Morris, 2009). As video feedback has been effective with families in therapy (Fukink, 2008) and with adult clients with social anxiety disorder (Warnock-Parkes et al., 2017), it is possible that audio recording would be similarly received. In addition, because of a lack of direct comparison studies, it remains unclear whether naturalistic observations offer information over and above what can be gleaned via self-report measures and in-clinic observations in therapy, and if so, for which kinds of clients and which sorts of presenting concerns.

There were several limitations of this study. While the recruited psychologists were heterogeneous in terms of experiences and backgrounds, there was a bias toward Australian participants, possibly due to better contacts with local networks, a longer recruitment period and more visibility of the research team's institutions mentioned in the invitation email. Second, the survey was conducted at a time when the General Data Protection Regulation (GDPR) was instigated within Europe. For European participants and possibly others too, with the GDPR being prominent in the media, there may have been a higher than usual sensitivity to privacy issues and data management. Third, we asked psychologists who hardly ever use naturalistic observation to evaluate it, using their imagination. It is possible that interviewees perceived more of a benefit to the EAR recordings than they might have in a typical therapeutic context, as they had not received non-verbal cues within the fictitious first session, only written information, which may have inflated the difference that the EAR made to their understanding of the family.

In summary, this study explored the use of, and perspectives on naturalistic observation and specifically on the potential utility of the EAR within psychological therapy with families. Most psychologists did not currently use naturalistic methods due to practical and ethical considerations, but could see their potential utility in providing a richer and more comprehensive assessment, which could inform treatment planning with families.

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