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Virupaksha Devaramane

Nagesh B. Pai
University of Wollongong, nagesh@uow.edu.au

Shae-Leigh Vella
University of Wollongong, vella@uow.edu.au

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Abstract

This study examined the short term effects of a brief familial intervention on schizophrenic the patient's levels of psychopathology and their primary caregiver's functioning in India. Caregiver functioning was measured by the caregiver's levels of burden and coping along with the patient's perceived level of expressed emotion (EE). The participants were 18 schizophrenic patients and their related primary carer from a medical facility in India. The patients' levels of psychopathology and EE were assessed at baseline and at completion of the study with the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) and the Family Emotional Involvement And Criticism Scale (FEICS; Shields et al., 1992), respectively. The primary caregiver's levels of burden and coping were also measured at baseline and upon completion of the study by the Burden Assessment Scale (BAS; Thara et al., 1998) and the Family Crisis Oriented Personal Evaluation Scale (F-COPES; McCubbin et al., 1981), respectively. The brief intervention was comprised of 3 one hour sessions aimed at educating the primary caregiver and patient about schizophrenia; along with improving their communication, problem solving skills and expression of emotions. A significant improvement was found between baseline and the final 3-month follow-up on measures of psychopathology for the patients, as well as family functioning for both the caregivers and patients. The implications of the findings are discussed, along with future research directions.

Keywords

carer, intervention, primary, family, relatives, brief, functioning, effect, their, schizophrenic, india, psychopathology, levels

Disciplines

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The effect of a brief family intervention on primary carer's functioning and their schizophrenic relatives levels of psychopathology in India

Virupaksha Devaramane [a], Nagesh B. Pai [b,*], Shae-Leigh Vella [c]

[a] Department of Psychiatry, Dr. A.V. Baliga Memorial Hospital, 6th Main, V.M. Nagar, Doddanagudde, Udupi 575102, India
[b] Graduate School of Medicine, Neurosciences and Mental Health, Illawarra Health Medical Research Institute, University of Wollongong, Wollongong, 2522 NSW, Australia
[c] Graduate School of Medicine, University of Wollongong, NSW 2522, Australia

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ABSTRACT

This study examined the short term effects of a brief familial intervention on schizophrenic the patient's levels of psychopathology and their primary caregiver's functioning in India. Caregiver functioning was measured by the caregiver's levels of burden and coping along with the patient's perceived level of expressed emotion (EE). The participants were 18 schizophrenic patients and their related primary carer from a medical facility in India. The patients' levels of psychopathology and EE were assessed at baseline and at completion of the study with the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) and the Family Emotional Involvement And Criticism Scale (FEICS; Shields et al., 1992), respectively. The primary caregiver's levels of burden and coping were also measured at baseline and upon completion of the study by the Burden Assessment Scale (BAS; Thara et al., 1998) and the Family Crisis Oriented Personal Evaluation Scale (F-COPES; McCubbin et al., 1981), respectively. The brief intervention was comprised of 3 one hour sessions aimed at educating the primary caregiver and patient about schizophrenia; along with improving their communication, problem solving skills and expression of emotions. A significant improvement was found between baseline and the final 3-month follow-up on measures of psychopathology for the patients, as well as family functioning for both the caregivers and patients. The implications of the findings are discussed, along with future research directions.
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1. Introduction

Schizophrenia is the most serious and debilitating mental disorder presenting in psychiatric clinics in both developing and developed countries. Being chronic and often incapacitating it exacts tremendous costs from patients, families and society. Patients experience profound disruption to their thoughts and lives. Families of patients face grief and emotional hardship and are frequently forced to assume lifelong care taking roles. In India the great majority of schizophrenic patients are cared for by family (Thara et al., 1998).

Despite intensive research to delineate the cause of schizophrenia, the precise aetiology remains unknown. One broadly accepted view is the vulnerability stress hypothesis which postulates that schizophrenia results from an interaction between an enduring genetic vulnerability and stressful environmental events. That is, the higher an individual's level of vulnerability or genetic predisposition is, the lower the level of stress that is required in order to precipitate the onset and reoccurrence of the illness (Das et al., 2001).

Aside from pharmacological treatments, family interventions have been shown to be efficacious and robust in assisting with the prevention of relapse in schizophrenic patients (Dixon and Lehman, 1995; Pitschel-Walz et al., 2004; Pharoah et al., 2010). However, Dixon and Lehman (1995) ascertain that there is inadequate evidence to determine whether family interventions improve family or carer functioning and well-being.

There is an extensive body of literature that delineates expressed emotion (EE) as a general reflection of the family's attitude towards the patient as a precursor to relapse (Butzlaff and Hooley, 1998). The construct of EE is comprised of three components: critical comments made by a relative about the patient, hostility and marked emotional response (Brown et al., 1972). More recently Rylands et al. (2011) found that high EE stimuli activated brain regions responsible for processing socially aversive information in schizophrenic patients. Thus, the emotional valence of the patient's environment significantly impacts upon their well being and illness outcomes.

Families caring for relatives with schizophrenia often experience considerable burden (Pitschel-Walz et al., 2004). The costs that families incur in terms of economic hardships, social isolation

* Corresponding author. Tel.: +61 242214071; fax: +61 242214341.
E-mail addresses: dr_viru@yahoo.com (V. Devaramane), nagesh@uow.edu.au (N.B. Pai), vella@uow.edu.au (S.-L. Vella).

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and psychological strain are referred to as burden (Pai and Kapur, 1981; Schene et al., 1998). Numerous studies have shown a relationship between caring for a schizophrenic relative and burden (Raj et al., 1991; Biegel et al., 1994; Martens and Addington, 2001). More recently Nasr and Kausar (2009) found that a family psycho-educational intervention significantly reduced caregiver's levels of burden in Pakistan. On the contrary Gonzalez-Blanch et al. (2010) found no effect from a brief family intervention on either burden or EE in Spain.

Tsang et al. (2003) found that much of the burden associated with caring for a schizophrenic relative pertained to social stigma with its consequences resulting in social isolation. This social isolation further exacerbates the burden felt by caregivers and in turn inhibits their coping mechanisms. Caring for schizophrenic patients is a chronic stressor with individual caregivers employing a varied array of coping strategies. For example, it is known that the use of emotionally based coping strategies such as avoidance and denial results in greater burden (Scazufca and Kuipers, 1999). On the other hand, caregivers who use more problem-focused less emotionally based coping strategies report less burden (Magliano et al., 2000). Furthermore, an international study conducted by Magliano et al. (2000) found that in the absence of family interventions burden and relatives coping mechanisms remain stable overtime.

It is therefore apparent that carer functioning as operationalised by burden and coping affect the emotional valence of the environment as measured by EE and thus impinge upon the illness outcomes of the patient. The reciprocal nature of this relationship is illustrated in Fig. 1. However, there is substantial evidence that EE and burden can be lowered while effective coping strategies can be enhanced through familial based interventions. Few studies have assessed all of these variables together along with their impact upon the levels of psychopathology and rates of relapse for schizophrenic patients.

Moreover the paucity of resources, lack of mental health professionals and poor mental health service infrastructure in developing countries such as India make the task of providing care to patients with schizophrenia and support to their families extremely challenging. It is therefore essential to develop pragmatic, time efficient and cost effective ways to enhance family functioning and thus reduce psychopathology in schizophrenic patients. Therefore, the purpose of this study is to examine the impact of a brief cost-effective family based intervention on carer functioning and the resulting effect upon levels of patient psychopathology and relapse.

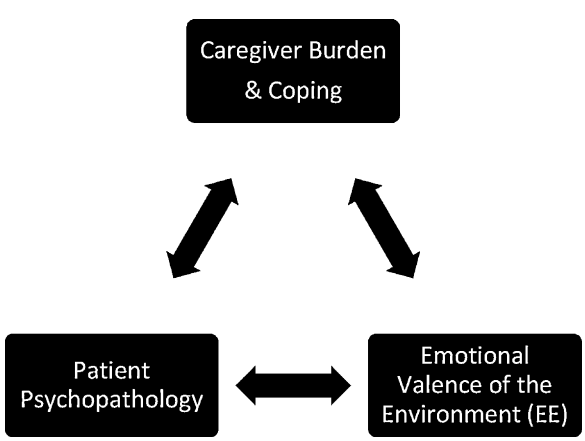

Fig. 1. The relationship between caregiver variables, the emotional environment and patients levels of psychopathology.

2. Methodology

2.1. Participants and sampling

The participants in this study were recruited via a convenience sample of inpatient and outpatient facilities at the K.S. Hegde Medical Academy, Mangalore, India. Patients to be included in the study had to meet the diagnostic criteria of schizophrenia using the ICD 10 (WHO, 1992), be within the age range of 18 and 65 years with an illness duration of between 1 and 10 years. In addition, the patients had to consent to follow-ups. Conversely, patients were excluded from the study if they were suffering an acute psychotic episode, co-morbid psychiatric or chronic medical conditions, or mental retardation.

Caregivers to be included in this study had to be related to the patient, be their primary caregiver (defined as the maximum number of hours caring for the patient) as well as being in the age range of 18 and 65 years. Carers were excluded from the study if they had a chronic medical or psychiatric condition themselves or another relative with a psychiatric illness.

2.2. Patient measures

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) was utilised to assess the positive, negative and general psychopathology symptoms of schizophrenic patients. PANSS is completed via an interview lasting approximately 35–45 min. The Family Emotional Involvement and Criticism Scale (FEICS; Shields et al., 1992) was used to assess the patient's perceived expressed emotion within the family. The FEICS is a self-report assessment tool.

2.3. Caregiver measures

The Burden Assessment Scale (BAS; Thara et al., 1998) was utilised to assess the level of subjective and objective burden felt by caregivers. The BAS was used as it was developed in India and thus facilitates understanding of burden within the confines of the cultural context. The primary caregiver's coping strategies were measured with the Family Crisis Oriented Personal Evaluation Scale (F-COPES; McCubbin et al., 1981); this instrument identifies effective problem solving and behavioural strategies utilized by families in difficult and problematic situations.

2.4. Brief family intervention

This intervention was adapted from: the Family Intervention and Support in Schizophrenia: A Manual on Family Intervention for the Mental Health Professional (Varghese et al., 2002). The psychoeducational session were aimed at educating the caregivers about schizophrenia in order to modify their attitudes to the patient. Additionally improved coping skills and ways of interacting with the patient were formulated and implemented.

This brief intervention was comprised of 3 modules that were 45 min in length with an additional 15 min discussion/question time. The intervention was completed over the period of a month; that way if a session was missed it could be caught up the following week. However, all sessions needed to be completed within the month. Session I covered education about schizophrenia, Session II dealt with assessing and handling problems and lastly Session III looked at handling communication and emotions.

2.5. Procedure

This is an invention based case study that assessed both patients and their related primary caregivers prior to the brief

intervention and at a 3-month follow-up after the intervention on a number of measures. Namely, patients completed the PANSS and the FEICS upon commencement of the study and at the end of the study at 3 months. Caregivers completed the BAS and F-COPES at baseline before undergoing the brief intervention and upon completion of the study at 3 months.

2.6. Statistical analysis

The computer software, the Statistical Package for the Social Sciences (SPSS 11.00), was utilised for conducting the analysis. Descriptive statistics were run on the demographic data and independent sample *t*-tests were utilised to ascertain whether there was a significant difference pre and post-intervention.

2.7. Ethical considerations

Ethical approval to conduct this study was obtained from the appropriate ethical boards. All caregivers and patients in this study were informed of the nature and purpose of the study and provided their written informed consent to participate in the study.

3. Results

3.1. Demographic characteristics

Twenty schizophrenic patients and their related (parent, spouse, sibling, child or other relative) primary caregivers consented to participate in this case study. A total of 18 schizophrenic patients and their primary caregivers completed the study. Therefore, this study had an attrition rate of 10%.

Table 1 reports the demographic characteristics of the patients and their caregivers. Table 2 summarises the clinical characteristics of the patient sample: their diagnosis, illness duration, previous treatment compliance, type of anti-psychotic medication, use of anticholingeric medication and dosage changes throughout the study. It is important to note that patients continued their pharmacological treatment as usual throughout the course of the study. Finally, Table 3 reports the primary caregiver's relation to the patient along with their contact with the patient.

3.2. Patient outcomes

A significant difference was found between patient psychopathology (PANSS) and perceived EE (FEICS) between intake and follow-up. The scores on both of these measures and their subscales along with the significance level of the independent sample *t*-tests are reported in Table 4 below. Additionally no patients experienced a relapse throughout the course of the study.

Table 1
Demographic characteristics of patients and caregivers.

Variable	Patients $N=20$ (%)	Caregivers $N=20$ (%)
Mean age (sd)	33.15 years (9.39)	47.60 years (14.80)
Gender		
Male	14 (70%)	11 (55%)
Female	6 (30%)	9 (45%)
Marital status		
Single	12 (60%)	1 (5%)
Married	8 (40%)	18 (90%)
Widowed	0	1 (5%)
Occupational status		
Employed (fulltime)	4 (20%)	9 (45%)
Employed (part-time)	5 (25%)	1 (5%)
Homemaker	4 (20%)	7 (35%)
Student	2 (10%)	0
Unemployed	5 (25%)	0
Retired	0	3 (15%)

Table 2
Clinical characteristics of the patient sample.

Variable	$N=20$ (%)
Diagnosis	
Paranoid SZ	18 (90%)
Undifferentiated SZ	2 (10%)
Mean duration of illness in years (sd)	4.4 years (2.3)
Treatment compliance in last year	
Regular	13 (65%)
Irregular	7 (35%)
Anti-psychotic medication type	
Typical anti-psychotics	5 (25%)
Atypical anti-psychotics	15 (75%)
Anticholinergic medication	
Yes	9 (45%)
No	11 (55%)
Anti-psychotic medication dosage	
Increased	4 (20%)
Decreased	3 (15%)
Remained constant	13 (65%)

Table 3
Primary caregivers care giving profile.

Variable	$N=20$ (%)
Relation to patient	
Father	4 (20%)
Mother	5 (25%)
Spouse	7 (35%)
Sibling	1 (5%)
Other relative	3 (15%)
Caregiver residence	
Same as patient	18 (90%)
Separate to patient	2 (10%)
Caregivers contact with patient	
Daily	19 (95%)
3–5 times per week	1 (5%)

3.3. Caregiver's level of burden and coping

Significant differences were found between caregiver's total level of burden (BAS) and coping scores (F-COPES) at baseline and at the end of the study. The scores on these measures and their subscales are reported in Table 5.

4. Discussion

This study was designed to evaluate the effectiveness of a brief family invention on levels of carer functioning as assessed through

Table 4
A comparison between patient intake and follow-up scores on psychopathology and expressed emotion.

Variable	Intake mean score (sd) $N=20$	Follow-up mean score (sd) $N=18$
PANSS		
Total score	51.25 (11.12)	44.00 (7.95)**
Positive symptoms	10.90 (3.62)	9.05 (2.20)**
Negative symptoms	13.55(5.20)	12.55 (3.80)*
General psychopathology	26.00 (6.03)	22.00 (4.83)*
FEICS		
Total score	38.90 (5.73)	36.66 (6.13)**
Perceived criticism	18.80 (3.08)	17.72 (3.81)*
Emotional involvement	20.05 (4.79)	19.16 (4.52)*

* $p \leq 0.05$.
** $p \leq 0.001$.

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Table 5
A comparison between caregiver's intake and follow-up scores on level of burden and coping.

Variable	Intake mean score (sd) $N=20$	Follow-up mean score (sd) $N=18$
BAS		
Score	66.8 (14.63)	60.38 (13.21)**
F-COPES		
Total score	97.5 (12.42)	102.22 (8.57)*
Acquiring social support	24.35 (6.84)	26.38 (6.36) ns
Reframing	29.25 (5.13)	30.44 (5.12) ns
Mobilizing social support	13.30 (3.72)	14.8 (3.04)*
Seeking spiritual support	18.30 (2.15)	18.44 (2.22) ns
Passive appraisal	12.15 (2.70)	12.38 (2.70) ns

ns, not significant.
* $p \leq 0.05$.
** $p \leq 0.001$.

EE, burden and coping on schizophrenic patient's illness outcomes. The results indicate that the brief multi-faceted family intervention significantly improved carer functioning from baseline to follow-up. Similarly, patient's levels of psychopathology also improved in this period.

Specifically, primary caregivers reported significantly lower levels of burden on the BAS scores. Carers also reported improved overall coping mechanisms with the F-COPES total score being significantly different between the two time points. However, there was only a significant difference between the two time points for one of the five scales of the F-COPE, namely the mobilizing social support scale.

These findings are in accordance with Tsang et al. (2003) assertion that societal stigma of mental illness impacts upon the ability of relatives to garner social support and that this subjective burden results in frustration, anxiety and helplessness for the carer. Similarly Lauber and Rossler (2007) conducted a review of the literature between 1996 and 2006 investigating stigma in developing Asian countries. They found that stigma of mental illness prevails in these countries and that the impact of this stigma is particularly detrimental to family members, creating considerable burden.

The mere fact that the BAS and the mobilising social support scale of the F-COPES were significant suggests that the brief intervention successfully brought about change in these areas. However, in order to draw definitive conclusions, further research needs to be conducted to replicate this finding. Future research should also attempt to better understand what components of the intervention best targets these areas; one possible suggestion could be the inclusion of a measure of stigma. A further suggestion could be the comparison of several different brief interventions or alternatively a qualitative investigation of what aspects of the intervention the carer's found most beneficial. This understanding would further assist in the development of brief, time efficient and cost-effective interventions for families of the seriously mentally ill.

Patients also reported significantly lower levels of EE from baseline to follow-up. This change in the emotional valence of their environment was associated with significantly lower levels of patient psychopathology between the baseline and follow-up time points. Additionally, no patients suffered a relapse during the course of the study, further supporting the efficacy of the intervention. These findings are in accordance with the literature on EE and its effect on the illness outcomes of schizophrenic patients (Butzlaff and Hooley, 1998; Breitborde et al., 2009; Aguilera et al., 2010).

Although this study demonstrates a significant association between a brief psychosocial intervention and carer outcomes, EE and patient psychopathology, it is difficult to ascertain causality. Referring back to Fig. 1 it is apparent that a reciprocal relationship exists between the measured variables and thus is impossible to delineate which variables if any were impacted by the intervention. For example, perhaps the intervention resulted in lower levels of burden and more efficacious coping strategies by the carers, leading to lower EE and better patient illness outcomes. Alternatively, taking part in the study may have lead to better management of the patient's illness resulting in a reduction in burden and EE. These shortcomings could be partly overcome by conducting randomised controlled trials to establish whether there is a difference in outcomes between the intervention and control groups.

Although this study has contributed to the knowledge base of the efficacy of time efficient brief family interventions it has numerous limitations. As previously mentioned, the largest limitation pertains to the design of the study and the difficulty in inferring causality. Furthermore, this study was only conducted over a period of 3 months; further work should be done to ascertain whether the effect of the intervention is maintained over a longer period of time.

Additionally, future research should seek to conduct more detailed clinical assessments of the patients at baseline rather than relying on illness duration and PANSS scores as a proxy measure of illness severity. It should also be noted that only primary caregiver functioning was measured in this study. With functioning operationalised by the variables of EE, burden and coping, it was thought that functioning could be further espoused by the inclusion well-being measures. Additionally, as only the primary caregiver and patient were surveyed and took part in the intervention, future studies could also include other members of the family in order to delineate a better understanding of the impact of the brief intervention on overall family functioning.

In conclusion, this study demonstrates the efficacy of a brief family intervention in improving overall carer functioning of family members caring for a schizophrenic relative in India. It also demonstrates the effectiveness of a brief family intervention on schizophrenic patient's illness outcomes over a short temporal period. Therefore, this study begins to address the gap in the literature highlighted by Dixon and Lehman (1995) that there is inadequate evidence to determine whether family interventions assist in improving functioning and well-being of carers. It also adds to the emerging literature base on the efficacy of brief family interventions for patients with schizophrenia.

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Contributors

Prof. Nagesh Pai and Dr. Virupaksha Devaramane designed the study and wrote the protocol. Dr. Virupaksha Devaramane managed the literature searches and analyses. Prof. Nagesh Pai, Dr. Virupaksha Devaramane and Shae-Leigh Vella undertook the statistical analysis, and Shae-Leigh Vella wrote the first draft of the manuscript. All authors contributed to and have approved the final manuscript.

Conflict of interest

None of the authors had any conflict of interest.

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