

Effortful Control and Sociability among Caregivers of Psychiatric Patients: A Demographic Lens

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Abstract

Research has extensively examined socio-emotional and psychological outcomes among caregivers of psychiatric patients but focused less on personality and temperamental factors. The aim of this cross-sectional, face-to-face survey is to compare the levels of effortful control and sociability traits between caregivers and non-caregivers of psychiatric patients. We also examined age, gender, and educational differences in the sample. We recruited families of psychiatric patients during hospital and home visits and shortlisted 93 caregivers and 110 non-caregivers ages 20 through 40. Findings showed that caregivers scored lower on effortful control and sociability than non-caregivers as hypothesized, but mean differences in effortful control were non-significant. Sex and educational differences were non-significant. However, older adults had more effortful control and higher sociability than younger adults. Theoretically, these findings extend awareness about risk factors in the caregiving process that can aid mental health professionals to design psycho-educational and counseling programs for temperament regulation of caregivers of mentally ill people.

Keywords: caregiving, extraversion, mental patient, sociability, temperament.

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Introduction and Literature Review

Psychiatric illnesses involve a combination of cognitive, affective, and behavioral problems that are associated with distress and/or problems functioning in social, work or family activities (WHO, 2022). In 2019, 1 in every 8 people, or 970 million people around the world were living with a mental disorder (WHO, 2022). Mental health is one of the most neglected areas in Pakistan. According to a survey report of 2015, over 14 million Pakistanis were experiencing mental diseases of at least a moderate degree (Ansari, 2015). Mostly family members manage care of psychiatric patients in Pakistan like other developing countries. Moitra et al. (2022) conducted a systematic review of treatment coverage for major depressive disorder in 84 countries conducted in the first two decades of 21st century. They included 149 studies in review and mentioned the absence of statistical information about the prevalence and treatment of mental health diseases in low and low-middle-income countries. They reported that only 8% of people used health services to treat mental illness in developing and under-developed countries. Whereas 33% of mentally ill people availed treatment facilities in the developed countries (Moitra et al., 2022). In a recent report, WHO (2022) highlighted social support needs of psychiatric patients in daily living and residence besides participation in education, work, and other meaningful activities work, and other meaningful activities. In this scenario, caregivers have significantly important responsibility to care for psychiatric patients

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providing help in daily chores related to personal, medical, household, financial, and other needs. Family Caregiver Alliance (2020) defined caregiver in terms of “*any relative, partner, friend or neighbor who has a significant personal relationship with, and provides a broad range of assistance for, an older person or an adult with a chronic or disabling condition. These individuals may be primary or secondary caregivers and live with, or separately from, the person receiving care.*” Reinhard et al. (2008) mentioned that primary caregivers provide all types of care while secondary or nonprimary caregivers also provide significant help and additional services. Alternate terms used are informal caregivers or home caregivers who are “*unpaid family member, friend, or neighbor who provides care to an individual who has an acute or chronic condition and needs assistance to manage a variety of tasks, from bathing, dressing, and taking medications to tube feeding and ventilator care.*” (Reinhard et al., 2008, p.1).

Psychiatric patients need supervision in almost all their daily activities. As the disease progresses, caregivers experience a high level of burden, personality changes, social isolation, and significant stresses (Imran et al. 2012). Caregiving is a tough job and has hidden risks for its performers. Siddiqui and Khalid (2019) stated that caring for someone with psychiatric illness is associated with a higher level of stress than caring for someone with functional impairment or from other chronic medical illnesses. Review of literature shows multiple physical, emotional, and psychological health problems of caregivers including physical strain of caregiving, more somatic and depressive symptoms, sleep disorders, stress, social isolation, and increased health-risk behaviors such as smoking and drug use than general population (Inogbo et al., 2017; Kim et al., 2017; Memis et al., 2020; Ofovwé & Osasona, 2022; Zhang et al., 2018).

The present study adopts Rothbart and Bates (2006) model of temperament that has three components of effortful control, surgency, and positive or negative emotionality. The Rothbart model of temperament is based on the interplay of reactivity and regulation which not only shape individual differences but also determine temperamental stability in a person over time and across situations (Rothbart & Bates, 2006). Effortful control is one aspect of temperament that is “*the efficiency of executive attention, including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors*” (Rothbart, 2012, p.137). It also refers to self-regulation, which concerns flexible regulation of behavior, cognition, and emotion (Rothbart, 2012). Effortful control is categorized into attentional control and behavioral control. Attentional control is the ability to focus or shift attention when needed. Behavioral control is further divided into inhibitory control and activation control. The ability to inhibit inappropriate approach behavior refers to inhibitory control. The ability to perform an action when there is a strong tendency to avoid it refers to activation control (Evans & Rothbart, 2007). Thus, activation control is capacity to overcome task avoidance and accomplish task performance instead especially when a person does not want to do so. Ample of literature on effortful control informs its being extensively studied with children. There are a few studies that examined it among adolescents and adults. One exception is Santens et al. (2020) who conducted a systematic review of empirical studies published from 2008 to 2018 to identify predictive or moderating role of effortful control in determining psychopathology among adults.

Research extrapolates that early trajectories of high or low effortful control extend beyond childhood and continue to longitudinally affect during adulthood. De Panfilis et al. (2013) found that low effortful control among university students was correlated with an earlier interpersonal maladjustment and general psychopathology. It implies that temperamental deficits cause psychological distress that leads to adjustment issues in social relationships. Atherton et al. (2020) examined longitudinal growth model of effortful control among adolescents and emerging adults. They found a u-shaped pattern in development of activation

control that was lower between age 10 and 14 years and then started growing between age 14 and 19 years.

The assessment of caregivers' temperament can aid in identification of health risks and their remedy. Cain et al. (2019) found that high effortful control increased within-person and between-person warmth and positive emotionality, particularly, when adults with high effortful control perceived others being interpersonally warm and affectively activated. They added that high levels of effortful control among adults promoted interpersonal behaviors, adaptation to environment, and adequate functioning in everyday situations. In contrast those lacking in effortful control experienced greater frustration, restraint, and seclusion (Bridgett, 2012) as well as maladaptation, psychological distress, and interpersonal conflict (Cain et al., 2019). Inanli et al. (2020) compared caregivers of patients with bipolar disorder with control group and reported that the hyper-thymic and depressive temperament caused irritability that adversely affected caregiving burden. In other words, the irritable temperament among caregivers exacerbated the caregiving burden.

Effortful control acts as a protective factor against negative socio-emotional outcomes.. Effortful control moderated the association and children with low negative emotionality and weak effortful control had more externalizing problems and lesser social cooperation than their counterparts (Wilson et al., 2021). Ranney et al. (2021) found that individuals with high effortful control exhibited strong tendency to worry but had weaker anxious arousal. They were confident to lower their anxious arousal during worrying. Contrarily, individuals with low effortful control experienced higher levels of worry, anxiety, and depression (Rannay, 2021).

Raines et al. (2021) examined moderating effects of effortful control in association between negative emotionality and its internalizing outcomes in terms of anxiety and depression among children. They found that anxiety and depression symptoms had positive inter-correlation, and both resulted from negative emotionality. Children with high effortful control resulted in low levels of negative emotionality, anxiety, and depression. Whereas low effortful control was linked with high negative emotionality, severe depression, and anxiety (Raines et al., 2021). Sociability refers to "*enjoyment derived from social interaction and being in the presence of others.*" (Evans & Rothbart, 2007, p. 869). It is a factor of extroversion that is marked with an outer orientation for being with other people, talkativeness, outgoingness, impulsivity, and low shyness (Derryberry et al., 2003). Research shows sociability lowers the risk of psychological burden among caregivers and those who were more sociable and extroverted perceived less caregiving burden (Mashburn, 2019). In contrast, those with low sociability had high negative affect and perceived less caregiving burden than those with high sociability (González-Abraldes et al., 2013). As the family caregivers are nearest persons to mentally ill persons so they were socially stigmatic which in turn decreased the degree of extroversion of caregivers of psychiatric patients (Koschorke et al., 2017). They experienced destruction of the emotional system, communication structure, and social interaction that keep on increasing given the long-term prevalence and burden of psychiatric diseases on the family. As the disease progressed, caregivers experienced a high level of social isolation (Akbari, 2018). Another study examined the association between personality traits and perceived health risks among spousal caregivers of lung cancer patients. They found that the more sociable or extroverted caregivers were less likely to perceive poor health outcomes and did not expect their health to worsen with caregiving responsibility (Hoerger et al., 2016). Hajek and König (2018) examined the association between big-five personality factors and informal caregiving and failed to find longitudinal association between informal caregiving time and extraversion. The social stigma associated with psychiatric illness significantly affects caregivers' sociability. Previous research showed that caregivers of schizophrenic patients were less sociable and faced intense stigma (Koschorke et al., 2017) and high level of burden (Kim et al., 2017). Zhang et al. (2018) found that 94.5% of 350 caregivers of psychological patients in

Singapore experienced affiliate stigma. They had poor self-confidence and self-esteem but high shame and embarrassment that prevented from social participation, public speaking, or teamwork (Zhang et al., 2018).

Rationale of Study

Caregivers become less sociable and have difficulty to self-regulate their behaviors that further exacerbates their quality of life. The rationale to examine these variables in this special population is to understand their temperament regulation and make a ground for designing further studies and intervention for the families of psychiatric patients. No empirical study could be traced in this region or with overall Pakistani population targeting these variables of interest. Thus, the present study has a significant contribution to address gap in the literature and present a piece of empirical evidence in Pakistani context.

Objectives of Study

The aims of the present study were:

1. To investigate the levels of effortful control and sociability among caregivers and non-caregivers of psychiatric patients.
2. To examine age, gender, and educational differences among caregivers and non-caregivers of psychiatric patients.

Hypotheses of Study

In the light of these objectives, the below-mentioned hypotheses were formulated:

1. Caregivers of psychiatric patients will have lower effortful control and sociability than non-caregivers.
2. Male caregivers of psychiatric patients will have higher effortful control and sociability than female caregivers.
3. Older caregivers of psychiatric patients will have higher effortful control and sociability than younger caregivers because of possessing better abilities for problem-solving, stress coping and management.
4. More educated caregivers of psychiatric patients will have higher effortful control and sociability than less educated caregivers.

Materials and Methods

Research Design

The present study is cross-sectional, face-to-face survey study that relied on self-reported data collected from caregivers of psychiatric patients during hospital and home visits.

Participants Characteristics

The target population of the present study was the families of psychiatric patients with chronic mental illnesses. Caregivers of psychiatric patients with depression, anxiety, schizophrenia, and paranoid disorders were chosen from three different psychiatry departments of governmental hospitals. The inclusion criteria were age between 20 to 40 years, middle socio-economic status of the family, being a close family member of the patient with these four psychiatric illnesses, caring or non-caring from at least the previous 12 months without getting any monetary reward, having a minimum primary education, and willing participation in the survey. The exclusion criteria were being caregiver of patients with psychiatric illnesses other than depression, anxiety, schizophrenia, and paranoid disorders. The rationale was to maximize sample homogeneity and minimize systematic variance due to individual and group differences.

Sample

A total of 93 out of 139 families, who matched with inclusion criteria and consented for survey participation, were telephonically contacted. The response rate was approximately 67%. Subsamples of caregivers ($n = 93$) and their comparison group of non-caregivers ($n = 110$) were selected through purposive sampling. The reason for having greater sample size for

non-caregivers is inclusion of more than two informants from some of the families. Participants were asked to report information about their age, gender, education, caregiver status, marital status, health status, and socioeconomic status.

Instruments

Adult Temperament Questionnaire: Evans and Rothbart (2007) developed Adult Temperament Questionnaire (ATQ) and Shahid (2016) translated it in Urdu language. It measures five dispositional constructs in general are effortful control, extraversion/surgency, negative affect, affiliativeness, and orienting sensitivity.

Effortful Control Scale: In the present study, we used activation control subscale of and sociability subscale of extraversion scale. The activation subscale has 12 items and sociability subscale has 15 items. It has a 7-point Likert-scale ranging from extremely untrue of you (1) to extremely true of you (7). Negative items are reverse scored from 7 to 1. A total score ranged between 12-84 for the activation subscale and 15-105 for the sociability subscale. “*I hardly ever finish things on time*” and “*I usually like to talk a lot*”, respectively are sample items. The alpha reliability of activation subscale is .75 and for sociability subscale is .73.

Procedure and Ethical Considerations

Prior to conduct of the present study, approval was sought from Ethic Review Committee University of Haripur, KPK Pakistan. Prior permission was taken from higher authorities of three hospitals and their psychiatry units. They were also requested for help to screen out patients with depression, anxiety, schizophrenia, and paranoid disorders. The caregivers of psychiatric patients were approached on outpatient days in hospitals at first place which were scheduled thrice weekly. After seeking their consensus and matching them on inclusion criteria for research participation, research team scheduled a home visit during which they administered informed consent form, questionnaires, and demographic sheet to caregivers and non-caregivers. They informed participants about research purpose, procedure, and instructions to respond to items. Researchers ensured confidentiality and data use only for the research purpose. Only those respondents were sampled who fully agreed to participate in research and none was forced to take part or stay in the survey. They were given freedom to withdraw from participation anytime. Data were collected in March to May 2021, and questionnaires was in Urdu language for easy comprehension. Care was taken to choose secondary caregiver from the family and preference was given to member who directly or indirectly assisted primary caregiver in fulfilling patient’s responsibility. Multiple visits were made to hospitals and homes to collect data from caregivers and non-caregivers of the psychiatric patients. Questionnaires were administered face-to-face. Upon survey completion, all respondents were thanked for their cooperation.

Statistical Analysis

Data were screened for missingness and normality. The descriptive statistics and alpha reliability of scales were computed. The main aim of the study was to measure levels of effortful control and sociability among caregivers of psychiatric patients against comparison group. An independent sample *t*-test was performed for this purpose. A secondary aim was to examine gender, age, and educational differences in the study variables. An independent-samples *t*-test was conducted to compare men against women, and two tests of one-way ANOVA were conducted for age and educational comparisons.

Results

It was difficult to collect data at first place and response rate was 67%. But there was no missing data. The skewness and kurtosis values confirmed normal data distribution. Within a range of 12-84, participants’ average score on effortful scale was in upper range ($M = 52, SD = 6.66$), whereas an average score on sociability scale was in upper middle range out of 15-105 ($M = 82.50, SD = 3.78$). Table 2 shows the findings of the descriptive analysis.

Table 1
Sociodemographic Differences between Caregivers and their Comparison Group (n=203)

| Demographic Variables | Full Sample (n = 203) | | Caregivers (n = 93) | | Non-caregivers (n = 110) | |
|------------------------|--------------------------|--------|------------------------|--------|-----------------------------|--------|
| | N | % | N | % | n | % |
| Gender | | | | | | |
| Men | 98 | 48.28% | 46 | 49.46% | 52 | 47.27% |
| Women | 105 | 51.72% | 47 | 50.53% | 58 | 52.73% |
| Age | | | | | | |
| 21-25 | 89 | 43.84% | 30 | 32.25% | 59 | 53.64% |
| 26-30 | 74 | 36.45% | 40 | 43.01% | 34 | 30.91% |
| 31-35 | 40 | 19.70% | 23 | 24.73% | 17 | 15.45% |
| Education | | | | | | |
| Primary | 24 | 11.82% | 15 | 16.13% | 9 | 8.18% |
| Middle | 22 | 10.84% | 15 | 16.13% | 7 | 6.36% |
| Matric | 17 | 8.37% | 8 | 8.60% | 9 | 8.18% |
| Intermediate | 56 | 27.59% | 27 | 29.03% | 29 | 26.36% |
| Graduation | 57 | 28.08% | 20 | 21.51% | 37 | 33.63% |
| Others | 27 | 13.30% | 8 | 8.60% | 19 | 17.27% |
| Marital Status | | | | | | |
| Single | 93 | 45.91% | 36 | 38.71% | 57 | 51.82% |
| Married | 107 | 52.71% | 54 | 58.06% | 53 | 48.18% |
| Others | 3 | 1.48% | 3 | 3.23% | 0 | 0% |
| Present Illness | | | | | | |
| Yes | 94 | 46.31% | 63 | 67.74% | 31 | 28.18% |
| No | 109 | 53.69% | 30 | 32.25% | 79 | 71.82% |

Note. n= number of participants, % = percentage

Table 1 presents sample distribution based on sociodemographic characteristics. Majority of participants from total sample were women (n = 104, 51.72%), age group 21-25 (n = 89, 43.84%) with mean age of 20.2 years, having graduate (n = 57, 28.08%) and intermediate level education (n = 56, 27.59%), married (n = 107, 52.71%), and with no present illness (n = 109, 53.69%) than their counterparts. These illnesses refer to presence of medical symptoms that interfere with daily functioning. It is noteworthy that 63 caregivers reported having some type of illness at the time of data collection that made 67.74% of 94 participants who reported having physical illnesses.

Table 2
Descriptive Statistics of Study Variables

| Variables | M | SD | Min | Max | Skew | Kurt |
|-------------|-------|------|-----|-----|------|------|
| Effortful | 52.00 | 6.66 | 31 | 72 | .26 | 2.25 |
| Sociability | 82.50 | 3.78 | 39 | 102 | .29 | -.04 |

Note: M = mean, SD = standard deviation, Min = minimum, Max= maximum, Kurt = kurtosis

Table 3 shows mean differences in effortful control and sociality scores of caregivers and non-caregivers of psychiatric patients. Though non-caregivers had higher scores on effortful scale (M = 54.24, SD = 8.60) as compared to caregivers (M = 52.72, SD = 6.17), but the mean difference between two groups was non-significant. The small effect size value of 0.10 also confirms the finding. The effect size on sociability scale was large (d = .95) and non-caregivers surpassed caregivers with relatively higher mean scores in sociability trait. These findings partially support hypothesis 1.

Table 3
Mean Scores of Participants on Study Variables by Caregiving Status (n=203)

| Variables | Caregivers (n=93) | | Non-care (n=110) | | t(201) | p | Cohen's d |
|-------------|-------------------|------|------------------|------|--------|-----|-----------|
| | M | SD | M | SD | | | |
| Effortful | 53.53 | 6.17 | 54.24 | 8.60 | -.71 | .50 | 0.10 |
| Sociability | 86.31 | 3.15 | 89.75 | 4.05 | -3.44* | .00 | 0.95 |

*p < .05.

As caregivers of psychiatric patients were population of interest, further analyses were performed on demographic characteristics of caregivers only. Table 4 displays non-significant mean difference between men and women in the reported level of effortful control and sociability. The small magnitude of Cohen's d values also confirmed the absence of gender difference in both variables. It is observed that women had higher mean scores than men. These findings refute the hypothesis 2 for gender-based differences in the study variables.

Table 4

Mean Scores of Participants on Study Variables by Gender (n=203)

| Variables | Men (n=46) | | Women (n=47) | | T(91) | P | Cohen's d |
|-------------|------------|------|--------------|------|-------|-----|-----------|
| | M | SD | M | SD | | | |
| Effortful | 52.55 | 5.52 | 53.26 | 6.79 | -.71 | .58 | 0.11 |
| Sociability | 79.19 | 2.73 | 80.34 | 3.50 | -1.15 | .08 | 0.37 |

Note. M = mean; SD = standard deviation.

Next, three different age groups of participants were compared for their average scores on effortful control and sociability. Table 5 shows that both temperamental dispositions increased with growing age. As expected, the older adults had more effortful control and high sociability than younger adults. The age group of caregivers between 31-35 year as compared to other two age groups, reported having higher mean scores on effortful control ($M = 55.87$, $SD = 6.56$) and sociability ($M = 80.61$, $SD = 4.03$). However, mean score difference in sociability was non-significant at alpha level .05. The η^2 revealed large effect size for effortful control and small effect size for sociability. Findings partially support hypothesis 3 about age differences in effortful control and sociability among caregivers.

Table 5

Participants Mean Scores on Study Variables by Age (n=203)

| Variables | 21-25 (n=30) | | 26-30 (n=40) | | 31-35 (n=23) | | F | P | η^2 |
|-------------|--------------|------|--------------|------|--------------|------|-------|-----|----------|
| | M | SD | M | SD | M | SD | | | |
| Effortful | 51.07 | 3.60 | 52.18 | 7.08 | 55.87 | 6.56 | 4.41* | .01 | 0.77 |
| Sociability | 79.47 | 4.91 | 79.98 | 4.41 | 80.61 | 4.03 | .42 | .65 | 0.20 |

*p < .05. Note. M = Mean; SD = Standard deviation.

Last, one-way ANOVA was run to estimate effects of participants' educational level on study variables. Participants' qualification was categorized into six different groups ranging from primary education to doctorate degree. Table 6 shows statistically significant mean difference with large effect sizes for effortful control and sociability at alpha level .05. However, no trend could be detected for an incremental growth in the development of these dispositions with a higher educational level.

Table 6
Participants Mean Scores on Study Variables by Education (n=203)

| Variables | Primary (n=15) | | Middle (n=15) | | Matric (n=8) | | Inter (n=27) | | Grad (n=20) | | Other (n=8) | | F | p | η^2 |
|-------------|-------------------|-----------|------------------|-----------|-----------------|-----------|-----------------|-----------|----------------|-----------|-------------|-----------|-------|-----|----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | | |
| Effortful | 55.80 | 7.87 | 51.80 | 7.39 | 53.50 | 7.15 | 51.07 | 6.02 | 55.50 | 5.41 | 48.63 | 6.99 | 2.35* | .04 | .90 |
| Sociability | 80.33 | 3.15 | 79.13 | 3.70 | 81.75 | 3.45 | 78.70 | 2.95 | 81.15 | 2.23 | 80.38 | 3.20 | 2.38* | .04 | .92 |

* $p < .05$.

Based on the mean scores, we cannot claim that more educated caregivers had higher effortful control and sociability than those who were less educated. The large effect sizes for both variables reveal that there were large group differences due to educational level. The findings refute hypothesis 4 that more educated caregivers will have better effortful control and sociability than less educated caregivers.

Discussion

The present study compared temperamental differences in effortful control and sociability between caregivers and non-caregivers of psychiatric patients. It was hypothesized that caregivers of psychiatric patients will have lower effortful control and sociability than non-caregivers. The findings show that caregivers had a poorer effortful i.e., activational control and lower sociability than non-caregivers. This may be due to the constant stress of the caregiving burden and stigma that family members of psychiatric patients experience. Their self-regulation becomes poor, and they lose control over their actions. Their social relationships suffer reducing social interactions. Findings partially support the hypothesis because mean difference in scores on effortful scale was not significantly strong.

Parents, children, siblings, or spouses are included in family caregivers, and they relate differently to patients. A plausible reason for lack of significant mean differences between caregivers and non-caregivers may be the pre-existing variations in the temperamental control of participants. Another reason can be the types of relationship between patients and caregivers. Despite these findings provide empirical support to

Inanli et al. (2020) for high prevalence of temperamental difficulties and irritability among caregivers of patients than control group. Findings show that non-caregivers have higher sociability scores than caregivers of psychiatric patients. This aligns to Akbari's (2018) study that found low sociability among caregivers of mentally disordered patients. The low level of sociability or surgency among caregivers may be result of stigma in society. Temperamental differences in effortful control and sociability were also examined for age, gender, and educational differences. It was assumed that older, males, and more educated participants will have better regulatory control and high sociability than their counterparts. Findings supported the hypothesis for age differences and older adults scored high on both temperamental traits of effortful control and sociability.

A trend was observed across three age groups that participants' mean scores incrementally increased as they grew older but no incremental pattern was traced with increase in educational level. Findings refuted hypotheses regarding differences based on gender and educational level. Mean scores for men versus women and more educated versus less educated were relatively homogenous. This contradicts with Meta-analysis conducted by Else-Quest et al. (2006) that women score higher on effortful control than men. A probable reason may be that they spend more family time in caregiving and are more exposed to stress which makes them mature in self-regulation. Not a single study could be traced on gender differences in effortful control among caregivers of patients or elderly. The present study unveils significant variations in the average scores of participants across education levels. Though hypotheses were not supported yet the findings support a previous study (i.e, Inogbo et al., 2017) that caregivers with low educational level perceived caring for psychiatric patients as a burden and reported negative outcomes.

An alarming observation was that caregivers of psychiatric patients suffered from health issues. Out of 203 participants, 94 reported suffering from physical illnesses at the time of data collection. Among them, 63 participants were from caregivers' group that made 67.74% of 94 participants. It is worth mentioning at this point that there were 93 caregivers and a little above two-third of them were experiencing ailments. This finding alludes to health challenges of caregivers. Participants' inclusion criterion was being in age range of 20-40 years. Four participants were in age groups of 36-40 years, but they were forcibly included in age groups of 31-35 years with a rationale to have comparable group size so that more or a smaller number of participants across comparative groups does not harm findings. There were approximately 20% participants in age range 31-35, and 80% participants were in other two age groups of 21-30 years.

Conclusion

Psychiatric illnesses are irreversible, nevertheless patients' wellbeing is conditional to wellbeing of their caregivers. The management of psychiatric patients is a challenge and risks the health of caregivers. It is indispensable to take protective measures for socio-emotional and psychological health of caregivers. The findings of current study highlight the significance of adaptive regulation of effortful control and sociability in family member of psychiatric patients. It is necessary to impart information about the protective factors of mental health to the general public and remove the stigma associated with mental illnesses. In this way, families of psychiatric patients will receive a non-judgmental attitude and gain social support and community support. Mental health practitioners and policy makers should design interventions to prevent harm to mental health of the caregivers of psychiatric patients.

Limitations and Suggestions

A limitation of the study is missing some salient information about patients and their caregivers. We did not collect data about patients' disease intensity and duration, length of treatment, and prognosis nor did we pair data for caregivers and non-caregivers of patients. We

used stringent criteria for the selection of caregivers, yet we did not gathered data about length and variations of caregiving patterns. This information could have potentially aided to understand caregivers' temperament. Another aspect is that we did not separate caregivers based on their relationship with the patients. Whether a caregiver is a parent or child, spouse or a sibling might have different attachment and behavioral regulation patterns. Taking care of these important factors in future studies can deepen insight about caregivers' temperament.

Another limitation is that present study only focused on four types of psychiatric diseases and findings can only be extended to caregivers of same diseases. Future studies can focus on comparing caregivers of patients with these and/or other disorders. Temperament regulation among may be affected by type, intensity, and length of disease of patients. More longitudinal, qualitative, and/or casual comparative studies can be planned with larger sample size, alternative research methodologies and analytic procedures.

Implications of Study

The present study portrays indigenous picture of temperament regulation in a developing country Pakistan. Its theoretical implication is extending awareness about risk factors in caregiving process of mentally ill people. It is an exemplar for similar studies in other cultures, societies, and countries and its cross-comparison of findings can inform about the contextual factors. The practical implication is screening out personality profiles of the caregivers and non-caregivers and detecting the levels of effortful control and sociability. Having less control and low sociability can have other dysfunctional behaviors. This realization highlights a need to create support network for family of psychiatric patients, particularly immediate caregivers so that they can have time for personal care and social interactions to cope. This finding is an insight for mental health professionals to facilitate coping with stressors of caregiving and maintain personal well-being. They can design therapeutic intervention, counseling programs, and recreational strategies for temperament regulation and risk management of caregivers. It also implied that government should offer health care services to such families and focus attention to devise psycho-educational and assistance programs to mitigate risks.

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