RESEARCH ARTICLE

Parental stress and depression symptoms among B40 wives of drug addicts in Malaysia: Resilience as a mediator [version 1; peer review: awaiting peer review]

Nurul Saidatus Shaja’ah Ahmad Shahril1, Zarina Arshat1,2, Haikal Anuar Adnan1,3

1Department of Human Development and Family Studies, Faculty of Human Ecology, Universiti Putra Malaysia, Serdang, Selangor, 43400, Malaysia
2Family, Adolescent and Child Research Centre of Excellence (FACE), Faculty of Human Ecology, Universiti Putra Malaysia, Serdang, Selangor, 43400, Malaysia
3Centre for Research in Psychology and Human Wellbeing, Faculty of Social Sciences and Humanities, The National University of Malaysia, Bangi, Selangor, 43600, Malaysia

Abstract
Background: The prevalence of depression is higher among women in the general population. While previous studies have contributed to demonstrating a higher risk of depression among women, there is a scarcity of studies on depression issues among women who experienced life as a spouse to drug addicts. Therefore, the present study aimed to investigate the association between parental stress faced in raising children and depression. Moreover, the study intended to examine the impact of parental stress on depression as mediated by resilience.

Methods: Using the purposive sampling method, a total of 132 B40 wives of drug addicts were chosen to participate in this study. Data were collected from six states in Malaysia using a structured questionnaire consisting of the Parental Stress Scale (PSS), Brief Resilience Scale (BRIS), and Zung's Self-Rating Depression Scale (SDS). SmartPLS software version 3.3.7 was used to analyze the data collected.

Results: Path analysis revealed that parental stress was significantly associated with depression through resilience. Specifically, the indirect effect highlighted that resilience was a partial mediator in the association between parental stress and depression. Nevertheless, it is also shown that even after accounting for the mediating role of resilience, parental stress still has a positive impact on depression.

Conclusions: The present study proffers additional strategies to drug addicts' wives, advocates, academicians, practitioners, and policymakers to approach depression issues in this community for better well-being.
Keywords
parenting, parental stress, resilience, depression, wife, drug addict, low income

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Corresponding author: Zarinah Arshat (zarinah_upm@upm.edu.my)

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Introduction

Drug addiction is a phenomenon that has existed globally for centuries. Global statistics recorded that about 5.5 percent of the world population – equivalent to 275 million people – engaged in drug misuse, with 36.3 million of them suffering from drug use disorders.8 Nationally, Malaysia’s National Anti-Drugs Agency has recently reported a total of 142,199 people involved in substance misuse in the year 2019.9 The increase of 8.7 percent from the previous year is an alarming figure, totaling 0.6 percent of Malaysia’s population involved in substance misuse. This illustrates that one in every 229 people in this country is a drug user. Further analysis demonstrates that drug addiction is much more common in men (95.5%) than in women (4.5%).1 Based on this percentage, it is assumed that there are more women with drug-addicted husbands than men with drug-addicted wives.

In addition, according to the latest statistics from National Anti-Drugs Agency in 2018,4 98.2% of drug addicts belong to the B40 group which categorizes the household income as less than MYR 4,489 monthly. This indirectly explains that wives of drug addict husbands might face multiple family stressors as they have to assume dual roles in the household of breadwinner and domestic manager, along with the parenting tasks due to the dysfunctional role of the drug-addicted husband. This is supported by Refs.5–7 which identified that men who were involved in drug abuse showed deterioration in physical health, and cognitive and sexual dysfunction.

According to a study,5 drug addict men with non-drug addict wives are found to be less responsible in playing their roles. This explains that drug-addicted husbands are less responsible in carrying out their roles as the family’s breadwinner which then may disrupt the family functioning. In order to cope with the needs of the family members, the wife of a drug addict might be pressured to do additional much work to keep the family functioning well. The additional work done by these wives are risky threats as5 ascertained that women with multiple jobs are prone to suffering from mental disorders. In summary, the dysfunctional role of the drug-addicted husband has burdened multiple responsibilities on the wife as a breadwinner, children’s caretaker, and doing house chores concurrently.

The issue of the head of the family having a drug addiction not only impacts the user but in fact also influences the rest of the family members pertaining to various stressors. A number of authors have recognized various damaging effects of drug addiction on the partners including psychiatric disorders,10–14 economic hardship,15 emotional distress,16 and parenting difficulties.17 Based on these previous findings, the wife is viewed as the most affected figure in the family due to the drug addiction issue of their spouses as supported by Refs. 17, 18.

Essentially, wives of drug addicts also play a major role as influential models for the development of their children. As a parent, they are the person the children depend on, the person who creates emotional bonds with them, and who provides guidance and support in going through daily life processes and tasks. Sole parenting responsibility has burdened wives of drug addicts to manage and overcome the associated parenting issues. The capability of wives of drug addicts to perform good parenting practices should be a concern as it is reported that children of drug addicts are vulnerable to become involved in drug addiction themselves.19 This indirectly leads to the continually rising statistics of drug addiction cases in the country and it is difficult to break the endless drug addiction issues in the family thus it goes on generation after generation.

Following the detrimental effect of drug addiction issues in a family, wives should have the capacity to successfully adapt to the associated problems in order to maintain their own well-being. While dealing with the multiple responsibilities in the household, wives of drug addicts need a protective element in reducing negative consequences on their psychological well-being as women are likely to internalize emotions20 that could eventually lead to social withdrawal, loneliness, and depression. In line with that, resilience is raised by researchers as the ability to bounce back in the face of adversities encountered in life. It is also being highlighted in many studies that resilience plays a protective role in the association between stress and psychological disorders.21–24 Thus, resilience is observed as having the potential to help an individual successfully adapt to life stressors.

Previous studies were more focused on male drug addicts as the unit analysis5,7,8 investigated the effects of drug addiction on a drug addict, treatment, and rehabilitation programs for drug addicts.25,26 While it is identified that there is no study that focuses on wives of drug addicts who have at least one child as unit analysis. This stresses the importance of this current study to determine the relationship between parental stress, resilience, and depression of wives of drug addicts in the Malaysian context.

In summary, this study was conducted to fill the research gap with 1) the respondents in the present study being wives of drug addicts in Malaysia, 2) utilising a quantitative approach to provide statistical data regarding parental stress, resilience, and depression among wives of drug addicts and 3) investigating the role of resilience as a mediating variable in the relationship between parental stress and depression.
In this original research project, the researchers examined various factors associated with the coping, adaptation and psychological well-being of wives of drug addicts across Malaysia. The researchers concentrated on examining the diversified stressors, coping and psychological well-being factors to understand the connection between each element in the context of drug addict family. These factors included economic strain, parental stress, marital conflict, negative life events, financial management, parenting and family adjustment, marital adjustment, coping and adaptation, perceived social support, religious coping, psychological well-being, resilience, depression and family strength. A research paper entitled “A cross-sectional study of Malaysian low-income drug addict wives: Relationship between family impact, coping and mental wellbeing” has been previously published by the authors which is based on the same dataset. Based on the Stress Strain Coping Support Model (SSCS), the researchers examined the influence of coping on stress and strain. The paper essentially highlighted the indirect relationship of family impact and mental wellbeing through coping, which suggested that the enhancement of coping mechanisms is crucial for better family impact management and improving mental wellbeing of Malaysia’s wives of drug addicts. While the previous publication contributed in determining the role of coping in enhancing mental wellbeing, the present study sought to explore the capacity of resilience on the relationship of parental stress faced by wives of drug addicts on their depressive symptoms.

In accordance with the above discussions, the study aimed to investigate the association between parental stress faced in raising children and depression. Additionally, the study intended to examine the impact of parental stress on depression as mediated by resilience. The conceptual framework for the present study is illustrated in Figure 1.

**Literature review**
Family is the closest environment to everyone in this world, whether it is safe or threatening to the development of the family members. Discussing in the context of a drug addict family, the family members are exposed to various stressors and negative environments which could affect their long-term well-being. Transforming to a female-headed family during the rehabilitation period of the husband, it is crucial to understand the role and risks faced by the wives in the absence of the husband as it is reported that among family members of a drug addict, the spouse endures the most damaging effects in term of psychological well-being.27

According to a local study conducted by Ref. 28, various adverse impacts are recognized on the family members including impaired relationships, emotional stress, effects on physical and emotional health, physical abuse, employment issues, economic problems, as well as stigma and discrimination. The findings illustrated that a threatening living environment could conceivably lead to the negative development of psychological well-being including depression. This is aligned with29 in which emotional problems are found to be the most problematic issue faced by the spouses of substance-dependents rather than physical violence. These findings demonstrate that emotional aspects were perceived as the most challenging obstacle they have to handle.

Furthermore, a substantial body of literature discerned the susceptibility to depression among women living with substance-dependent husbands.11–14,30 These studies agreed that the women who face the issue of a husband’s substance misuse are prone to suffering from depression. Besides, the prevalence of depression and anxiety levels is clearly found higher in wives of substance abusers compared to the control group of wives of non-substance abusers.12,31,32

In line with that, another study discovered most of the wives of men with substance-related disorders in the study, exhibit psychiatric symptoms such as depression, interpersonal sensitivity, anxiety, aggression, obsession or compulsion, phobia, paranoid, and psychosis.11 Specifically, opiate-dependent substance use of husbands predicts the most depressive

![Figure 1. Conceptual framework.](image-url)
symptoms experienced by participants. This conveys that women with addicted husband are predisposed to higher rates of depression among other psychological problems.

Based on the studies discussed, the susceptibility to depression could be explained by the responsibilities overload held by the wives of drug addicts in order to maintain their family’s well-being as reported in. A study also highlighted that working wives of substance-dependent husbands were reported to express significantly higher depression and anxiety levels compared to the general population. Aside from that, the duration and severity of substance consumption also contributed to the presence of psychiatric illness among wives of substance abusers. These findings suggest that the longer the exposure to a high-stress environment due to the substance use disorder, the more distressing depressive symptoms wives experienced over time. However, while the negative impact is perceived, there is limited study directly focusing on psychological issues among wives of drug addicts in Malaysia.

According to Abidin’s parenting stress theory, parental stress is “a multidimensional concept which is cumulative, highly influenced by the environment, and a result of parent-child transactions that promote negative feelings in parents.” Parental stress is also characterized as parental perceptions of an imbalance between the demands of parenting and available resources.

Nevertheless, parenting is an inseparable element in understanding the concept of parental stress. Parenting is defined as an activity that involves the nurturance of the children by parents including decision-making, discipline, and child guidance. Involvement from both parents is important in order to ensure the optimum and effectiveness of parenting activities. The dysfunction of one parent will indirectly transfer the responsibilities to another parent which results in a double burden. Every parent has distinct roles such as house chores, child care, and being the breadwinner. Maintaining the balance of these roles keeps the family’s well-being in a good state.

However, in the context of a drug addict family, wives might experience stress and difficulties in performing parenting activities due to the dysfunction of the husband’s roles. This suggests that the involvement of the husband is essential in reducing the level of parental stress. Wives of drug addicts have similar responsibilities as single mothers in which they raise their children, are breadwinners, and take care of house chores by their own selves. All of these activities depend solely on these wives which might stress them out with time.

Available research evidence supports the general conclusion that parental stress leads to depression. The responsibilities and commitment of being a parent are believed to be the most significant source of stress in the life of working women. In addition, sole parents are more exposed to stressful lifestyles and report worse financial difficulties and depressive affect.

Parental stress is found to be one of the challenging problems experienced by single mothers and wives of substance abusers. Parenting is also expressed to be more difficult without the presence of a male parent especially in shaping the children’s discipline. These continuous and unsolved constraints will eventually lead to a higher level of prolonged stress which might disrupt the well-being of wives of the drug addicts. In summary, there are very limited studies concerning parental stress faced by wives of drug addicts despite the dual parental role they have to sustain.

Resilience is referred to as the ability of an individual to withstand and manage to adapt when facing life challenges. While considering the origin of the word, the researcher believed that resilience is more accurately defined as the ability to bounce back or recover from stress, with roots from the word “resile”. Resilience is documented in several studies to be associated with depression, quality of life, marital quality, and mental health. It receives many researchers’ attention in terms of exploring the mediating and moderating effect on the association between stress and well-being in various contexts. Thus, the present study attempted to look at the mediating role of resilience in the relationship between parental stress and depression.

Methodology

Ethics and consent

This study was approved by the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia on 16 December 2020 (Reference No.: JKEUPM-2020-406). Permission was sought from National Anti-Drugs Agency (NADA) Malaysia to do a background survey among clients at the Narcotic Addiction Rehabilitation Centre (NARC) and was confirmed. Written informed consent was obtained from participants; this was electronic or pen-paper depending on the method of questionnaire delivery.
Research design
The present study is carried out as a quantitative study as opposed to previous qualitative studies in order to provide statistical findings on a related population of B40 wives of drug addicts in Malaysia. A quantitative study is generally described as a systematic research design by collecting numerical data and carrying out computational and statistical analysis. This approach offers distinctive advantages including allowing the researcher to reach a higher sample size of respondents and a quicker process of data collection.

The correlational study primarily aims to identify the relationship between study variables, specifically the association between parental stress, resilience, and depression. The research variables for the present study are specifically described as follows. The independent variable is parental stress and the dependent variable is depression, where resilience was selected as the mediating variable in the relationship between parental stress and depression. Additionally, this study applied a cross-sectional design to explore the studied variables during the rehabilitation period of the participants’ husbands through self-administered questionnaires.

Research participants
The present study adopted a purposive sampling method to select the study sample which involved 132 (N=132) wives of drug addicts. The inclusive criterion of the subject for this study is a B40 wife which is categorized as a household with income of less than MYR 4,489 (USD 1,103.56), a wife whose husband undergoes rehabilitation at the Narcotic Addiction Rehabilitation Centre (NARC) run by the National Anti-Drugs Agency in Malaysia, a wife who was never involved in drug misuse, being of Malay race and has at least one child aged 17 or below, and living together. Based on the criteria listed above, wives who do not meet all criteria were excluded from the sampling procedure. Altogether, the researchers obtained a total of 296 wives’ information from the clients in NARC. Based on the information, the participants were then contacted through phone calls and letters. However, during the screening process, it was discovered that 45 wives did not meet all criteria, 85 wives were unreachable through phone calls and questionnaire postage, and 32 wives refused to participate in the study, leaving a total of 132 respondents. The sample size required for this study is computed using GPower software which suggested 119 minimum samples at the 95 percent confidence level (α=0.05) with the inclusion of three study variables.

Research instruments
The researchers received permission from respective instruments’ developers to perform the back-to-back translations and to use them in the data collection process. All instruments were translated into the Malay language by the institutional professional translator from the Centre for the Advancement of Language Competence (CALC), Universiti Putra Malaysia. In order to confirm the representative of the research instruments, two experts in human development and developmental psychology contributed to examining the instruments for content validity assessment.

The Parental Stress Scale by Berry and Jones\(^43\) was used to measure the respondent’s parental stress level. It comprises 18 items that measure relevant emotions and role satisfaction of parents. The respondents are required to respond to each of the items based on how they experience parenting. The items are answered from 1=strongly disagree to 5=strongly agree. It is reported in the original study that the internal consistency of the scale is 0.83 which indicates a good reliability value in measuring parental stress. This scale is widely used in research all over the world across various family contexts. Earlier studies also reported Cronbach’s alpha values of 0.89\(^51\) and 0.84\(^52\) suggesting high reliability of the instrument. In the present study, the internal consistency coefficient recorded is 0.86 for the actual study.

The Brief Resilience Scale developed by\(^47\) was used to assess the resilience level of wives of drug addicts in this study. The scale measures the ability to bounce back from stress. The scale consists of 6 items and was rated using a 5-point Likert ranging from 1 (strongly disagree) to 5 (strongly agree). The scale reported a good reliability value which is 0.80 to 0.91. The internal consistency of this scale was also approved in several studies as 0.93\(^53\) and 0.85,\(^34\) while the present study documented a 0.72 value of Cronbach’s alpha which satisfied the requirement of reliability to use in the data collection process.

Zung’s Self-Rating Depression Scale (SDS) invented by Ref.\(^55\) was adopted in the present study to measure the depressive symptoms of the respondents. The scale is comprised of 20 items that cover emotional, psychological, and somatic symptoms related to depression. Each of the items requires respondents to respond in a 4-point scale ranging from “little of the time” to “most of the time”. The total score on the scale ranges from 20 to 80 in which the increment of the score shows the depression severity. The instrument showed good reliability with Cronbach’s alpha value of 0.83.\(^35\) While in this actual study, the internal consistency coefficient is 0.85.
Data collection procedure

In anticipation of the study, research ethics was approved by the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia. Permission from the National Anti-Drugs Agency (NADA) Malaysia to do a background survey among clients at the Narcotic Addiction Rehabilitation Centre (NARC), was then requested. Upon approval from NARC, wives of drug addicts were then contacted based on the contact information provided. Data collection was carried out through online and offline platforms, in which a set of questionnaires with an informed consent form were distributed through the WhatsApp application in the form of Google Form. Whereas for offline data collection, a set of questionnaires along with a written informed consent form was posted out to participants’ home addresses. In addition, a pilot study was conducted before the main study involving 30 wives of drug addicts from two of the above-mentioned rehabilitation centers in Malaysia.

Data analysis

The data collected for the present study is analyzed using Statistical Package for Social Sciences (SPSS) version 22.0 and SmartPLS version 3.3.7. The data analysis process begins with data screening followed by descriptive analysis and partial least squares structural equation modelling (PLS-SEM) analysis. Firstly, data screening was performed to detect and fix any errors in the data set for further data analysis process. Next, descriptive analysis was used to describe and summarize the demographic background of the study participants including age, education level, marriage duration and number of children living together. Harman Single Factor test was then conducted to detect any systematic error variance shared among model variables in this current study, which might indicate common method variance (CMV) issue in the research data. Common method variance (CMV) is generally a response bias when a single survey respondent is used to rate both the independent and dependent variable of an empirical study.57 Finally, PLS-SEM analysis was performed through two model assessments, measurement model assessment and structural model assessment, to test the relationship and mediation effect of model variables.

Results

Participant demographics

The participants involved in the present study ranged from the age of 18 to 53 years old, with an average age of 37.92. In regard to the level of education, most of the respondents (48.5%) completed upper secondary school. In terms of marriage duration, the majority of the respondents have been married for 6 to 10 years (i.e., 27.3%). Additionally, most of the respondents have 3 children.

Common method variance

In order to detect any systematic error variance shared among variables in this current study, Harman Single Factor test was conducted prior to the preceding data analysis stage. The factor analysis revealed a 17.95% of total variance in which less than 50% as suggested by Ref.58, stipulating that common method bias is negligible for this research data set.

Measurement model assessment

In conducting mediation analysis, assessment of the measurement model is the primary initial step to evaluate the assumptions of reliability and validity of constructs used in the study. The assessment includes three criteria: construct validity, convergent validity, and discriminant validity.

According to Ref. 59, an item with an average variance extracted (AVE) value less than 0.5 is acceptable when the composite reliability is above the threshold >0.6, indicating sufficient convergent validity. However, item purification is performed on several items due to very low loading. As shown in the Table 1, several items (PSS_2, PSS_3, PSS_4, BRS_1, BRS_3, BRS_5, SDS_2, SDS_5, SDS_6, SDS_11, SDS_12, SDS_14, SDS_16, and SDS_20) from each constructs were eliminated due to their extremely low loading values. All of the stated items remained on the questionnaires for the data collection and were only discarded during the data analysis stage due to extremely low loading readings. After the removal of the items, all three constructs fulfill the required standard. Several items with loading values below 0.5 were considered to remain in the analysis as the removal does not improve the value of composite reliability and convergent validity.

As a result, all constructs satisfied the criterion for reliability and convergent validity, while discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) test which specified measuring similarity between latent variables. Referring to Table 2, all discriminant validity values were underneath the threshold value of 0.85, which affirmed discriminant validity for all variables were proven.

Structural model assessment

A structural model assessment was carried out to estimate and test the causal relationship between the latent variables. The indicators in SmartPLS analysis include R-square (coefficient of determination), B value (structure path coefficient),
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t-statistic value, and p-value primarily used for calculating results at a 95 percent confidence interval. The R-square values were categorized by the following thresholds: high (> 0.75), moderate (>0.50), or low (>0.25). In addition, the variance inflation factor (VIF) value reflects the amount of multicollinearity among a set of multiple regression variables in which a value greater than 5 indicates high multicollinearity. In other words, high multicollinearity undermines the statistical significance of an independent variable. Based on Table 3 below, VIF showed a lower value than 5 indicating no multicollinearity argument in this model.

The mediation analysis comprises three main assessments: total effect, direct effect, and indirect effect. Specifically, the path coefficient for the structural model was evaluated to investigate the research objectives using bootstrap. The results computed show that $R^2 = 0.395$ which expressed 39.5% of changes in depression can be explained by the parental stress and resilience. Based on Table 4 below, parental stress was found to be positively related ($\beta = 0.194, p < 0.05$) to depression. Whereas negative associations were found in both the relationship between parental stress and resilience ($\beta = -0.283, p < 0.05$), and the relationship between resilience and depression ($\beta = -0.545, p < 0.05$). Path coefficient represents the direct effect between study variables.

Mediation analysis was performed to assess the mediating role of resilience (RS) in the relationship between parental stress (PS) and depression (DEP). The results (see Table 5) revealed a significant indirect effect of PS on DEP ($\beta = 0.154$, $t = 3.406$, $p < 0.001$). The total effect of PS on DEP was significant ($\beta = 0.349$, $t = 4.814$, $p < 0.001$), and with the inclusion of the mediator the effect of PS on DEP was still significant ($\beta = 0.194$, $t = 2.285$, $p < 0.05$). As a result of significant direct and indirect effects, it shows that resilience partially mediates the relationship between parental stress and depression.

### Table 1. Continued

<table>
<thead>
<tr>
<th>Construct/Item</th>
<th>Loading</th>
<th>Composite reliability</th>
<th>Average variance extracted (AVE)</th>
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<td>SDS _16</td>
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<td>SDS _17</td>
<td>0.308</td>
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<td>SDS _18</td>
<td>0.322</td>
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<tr>
<td>SDS _19</td>
<td>0.635</td>
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</tr>
<tr>
<td>SDS _20</td>
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</tbody>
</table>

### Table 2. Discriminant validity.

<table>
<thead>
<tr>
<th>Relationship</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parental Stress</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Resilience</td>
<td>0.323</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Depression</td>
<td>0.416</td>
<td>0.376</td>
<td></td>
</tr>
</tbody>
</table>

Discriminant validity is established when HTMT < .85.

### Table 3. Variance inflation factor.

<table>
<thead>
<tr>
<th>Relationship</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Stress-Depression</td>
<td>1.087</td>
</tr>
<tr>
<td>Parental Stress-Resilience</td>
<td>1.000</td>
</tr>
<tr>
<td>Resilience-Depression</td>
<td>1.087</td>
</tr>
</tbody>
</table>

### Table 4. Path coefficient assessment.

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Coefficient</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental stress-&gt;depression</td>
<td>0.194</td>
<td>2.401</td>
<td>0.023</td>
</tr>
<tr>
<td>Parental stress-&gt;resilience</td>
<td>-0.283</td>
<td>3.565</td>
<td>0.000</td>
</tr>
<tr>
<td>Resilience-&gt;depression</td>
<td>-0.545</td>
<td>7.844</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Table 5. Mediation analysis results.

<table>
<thead>
<tr>
<th></th>
<th>Total effect (PS-&gt;DEP)</th>
<th>Direct effect (PS-&gt;DEP)</th>
<th>Indirect effect (PS-&gt;RS-&gt;DEP)</th>
<th>Percentile bootstrap 95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>t-value</td>
<td>p-value</td>
<td>Coefficient</td>
<td>t-value</td>
</tr>
<tr>
<td>0.349</td>
<td>4.814</td>
<td>0.000</td>
<td>0.194</td>
<td>2.285</td>
</tr>
</tbody>
</table>

Note. SE: Standard Error; PS: Parental Stress; RS: Resilience; DEP: Depression.
Referring to Table 5, the Bootstrap estimate of the true indirect effect ($\beta = .154$) lay between .051 and .222 with 95% confidence interval. The result indicates that there was a significant indirect effect (mediational effect) of parental stress on depression as mediated by resilience.

**Discussion**

The present study intended to investigate the association between parental stress, resilience, and depression. The study also analyzes the impact of parental stress on depression as mediated by resilience among wives of drug addicts in Malaysia. Our results demonstrated that parental stress is positively related to depression which indicates the increase in parental stress level causes higher depression symptoms among wives of drug addicts. In addition, parental stress was also found to be negatively associated with resilience, while resilience displayed a negative relationship with depression. Together, the findings confirm a partial mediating effect of resilience on the relationship between parental stress and depression, where the direct effect and indirect effect of path analysis are both significant.

These basic findings are consistent with research showing that there is a significant association between parental stress and depression. In addition, parental stress was found to be associated with maternal depression among new mothers. In line with the findings, a previous study documented the risk of parenting-associated stress in elevating depression and anxiety among parents. Even though the study sample is from various contexts including new mothers, general parents, mothers with autistic children, and mothers from fragile families, the associations are still consistent across the context.

The next findings tie well with the previous studies where resilience was found to be negatively linked to depression. It is further noted that higher resilience causes a reduction in depression levels. Despite the fact that resilience is viewed as a potential protective factor in the face of adversities, several studies revealed that levels of resilience and quality of life among family members of substance abusers were lower compared to the control group. Additionally, relatives of substance abusers also exhibit higher symptoms of burnout, depression, hopelessness, and risk of developing psychiatric issues. This suggests a necessity of building resilience among the family members of substance abusers, particularly their spouses as the head of the family, as it is reported that wives experienced helplessness with time in facing the issue of their partner’s substance dependency.

Additionally, a recent cross-sectional study found an association between resilience and marital quality in which low resilience indicated poor marital quality which in turn influences the mental health of the wives of substance-dependent partners. This finding indirectly emphasized the importance of resilience in affecting the well-being of wives through various aspects of measurement.

Following the literature search, specific studies on the mediating effect of resilience on the relationship between parental stress and depression were very limited. Nevertheless, resilience was found to significantly mediate various stressors with depression. The stresses include psychological stress, perceived stress, and pandemic-related stress among adult populations. When comparing our results to these studies, it should be pointed out that resilience does connect the association between parental stress and depressive symptoms experienced by wives of drug addicts.

In summary, it can be reviewed that parental stress, resilience, and depression are linked to one another which indicates that each variable does influence the other variables. When applying to the situation of wives of drug addicts, the parental stress they experienced influences their depression level through resilience. Likewise, parental stress is also associated directly with depression levels which means high parental stress could result in higher depression levels. Thus, both parental stress and resilience play a significant role in minimizing depressive symptoms among B40 wives of drug addicts in Malaysia.

**Limitation and recommendation**

Our study has some limitations related to the research methodology, specifically sample size and sampling technique. Firstly, due to constraints for obtaining the background information of wives of drug addicts, the sample size for this study was considered very limited. In addition to that, a huge number of clients’ wives failed to be contacted whether through an online or offline approach. This resulted in a very limited sample to be selected as study participants. Secondly, the non-probability sampling method applied hinders the generalization of the study findings. Thirdly, as a cross-sectional and mediational study which assists in discovering correlational relationships, the present study does not allow causal inference. Nevertheless, the strengths of this study should be highlighted despite several limitations faced. In terms of research design, the present study contributes a quantitative approach to the body of knowledge regarding the study among wives of drug addicts in Malaysia in which most of the local studies focus on a qualitative approach to explore the well-being of this community. Furthermore, study findings could assist professionals in building resilience intervention.
programs in order to encourage wives of drug addicts’ capability to combat life challenges. Accordingly, some recommendations are advised for future researchers. Foremost, future researchers should increase the sample size by including wives of drug addicts from all states in Malaysia. Secondly, the probability sampling method should be considered for the generalization of findings to reach a comprehensive conclusion. Lastly, future researchers could replicate this study with wives of drug addicts living with their husbands to explore any differences possibilities of parental stress, resilience, and depression.

Data availability

Underlying data

Figshare: Parental Stress and Depression Symptoms among B40 Wives of Drug Addicts in Malaysia: Resilience as a Mediator. DOI: https://doi.org/10.6084/m9.figshare.19865176.v5.71

This project contains the following underlying data:

- Data file 1 (Research Data for “Parental Stress and Depression Symptoms among B40 Wives of Drug Addicts in Malaysia: Resilience as a Mediator”)
- Data file 2 (Data Key Reference)

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Author contributions

Nurul Saidatus Shajahah Ahmad Shahril: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Resources, Software, Writing – Original Draft Preparation, Writing – Review & Editing. Zarinah Arshat: Funding acquisition, Supervision, Methodology, Conceptualization, Writing – review & editing. Haikal Anuar Adnan: Data Curation, Project Administration, Writing – review & editing.

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