

The relationship between coping styles and depression among caregivers of children with cerebral palsy in Nigeria, West Africa

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Abstract

Background: Caring for a child with cerebral palsy (CP) is an arduous task and the over-reliance on specific coping strategies may predispose caregivers to depression. **Objective:** The aim of this study was to determine the relationship between the different types of coping strategies and presence of depression in caregivers of children with CP. **Methods:** One hundred and thirty two participants were recruited into the study. Their coping styles were measured using the Brief COPE inventory while depression was assessed with Mini International Neuropsychiatric Interview. **Results:** The prevalence of current depressive episodes among the participants was 20.5%. Depression had a strong negative correlation with active coping ($r = -0.415$), planning ($r = -0.432$), and positive reframing ($r = -0.594$), and a weak negative correlation with humor ($r = -0.239$). But a strong positive correlation with use of instrumental support ($r = 0.421$) and self-blame ($r = 0.448$), and a moderate positive correlation with denial ($r = 0.313$), and behavioral disengagement ($r = 0.308$). Both emotion-focused ($r = -0.361$) and problem-focused ($r = -0.576$) coping style had a strong negative correlation with depression. While dysfunctional coping style had a strong positive correlation with depression ($r = 0.489$). **Discussion:** Emotional and problem focused coping style were found to more protective against depression than dysfunctional coping styles among care givers of children with CP.

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Keywords: Caregiver, children, coping style, depression, cerebral palsy.

Introduction

Caregiving is a normal part of parenting a young child, but managing the child with cerebral palsy can be very exhausting for caregivers¹. Studies have shown that taking care of children with impairments often causes detrimental effect on caregivers' mental health². Cerebral palsy (CP) describes a set of conditions that is associated with major physical deficits which arise in the early stages of brain development. It results from a non-progressive brain lesion occurring pre-, peri- or post-natally before the second year³. A major characteristic of cerebral palsy is impaired motor function, but many patients also suffer communicative, sensory and intellectual impairments and subsequently experience severe limitations in basic self-care activities such as feeding and dressing³. The overall Prevalence estimates from High Income Countries range from 1.5-3.3 per 1,000 live births^{4,5}, while those in Africa are less precise with limited information depicting wide range figures from 2-10 per 1,000 live births^{6,7}. Cerebral palsy has substantial lifelong effects on daily function, societal participation and quality of life (QOL) for children and their families. Caregiving therefore is often lifelong with the attendant impact on the caregivers (parents).

There is strong evidence that the prevalence of mental health problems, particularly depressive disorders, is higher among the parents of children with disabilities⁸. On the average, a number of studies put depression in caregivers of children with CP to range from 30%-61.2%^{9,10}. Children with CP are at increased risk of behavioral and emotional problems and subsequently their parents experience increased parental stress. In fact, studies showed that Child behavioral problems uniquely predict parental psychological

symptoms and impaired adjustment¹¹. Although not all parents of children with cerebral palsy develop mental health problems¹². Studies have associated different parental coping styles with either positive or negative psychological outcomes in parents of children with cerebral palsy^{13,14}. Coping refers to the cognitive and behavioral efforts made to manage stress¹⁵. Specific coping strategies serve to manage or alter the source of stress (problem-focused coping) or to regulate stressful emotions (emotion-focused coping)¹⁵.

Previous African study have shown that the task of caring for children with cerebral palsy have a stressful impact on the caregivers which may lower their qualities of life and thus contribute to psychiatric morbidity¹⁶. However, in our environment records show a dearth of studies on the types of coping strategies used by the caregivers of children with cerebral palsy, the prevalence of depression in them and the relationship between their coping styles and level of depression. Hence, this study aims to investigate the association between the types of coping strategies used and the development of depression in the of primary care-givers of children with cerebral palsy attending two health facilities in Nigeria. The result will add to the knowledge base about cerebral palsy in Africa and also help bring problems to the fore, and identify caregivers at risk of developing mental illness due to caregiving

Methods

This study was conducted between January and June 2017 in two Federal government owned tertiary hospitals; Child and Adolescent Mental Health Services Centre (CAMHSC) of the Federal Neuropsychiatric Hospital Lagos, and Lagos University Teaching Hospital



(LUTH) Idi-Araba, with 138 and 36 registered children and adolescents with cerebral palsy respectively.

The study design was a cross-sectional descriptive study and the participants were recruited through a convenient sampling method. The calculated sample size of 132, with desired degree of confidence set at 0.05 and normal deviate for two-tailed null hypothesis at 95% (1.96).

Data were collected using:

1. Socio-demographic questionnaire: a semi-structured questionnaire which was used to determine socio-demographic variables such as ages of caregiver and child, gender of caregiver and child, relationship to child, marital and employment status of the caregiver, number of children and their ages, ethnicity, highest level of education completed, duration of being the primary care-giver, and level of social supports.
2. Brief COPE Questionnaire: a self-report questionnaire used to assess a number of different coping behaviors and thoughts a person may have in response to a specific situation. It is made up of 14 subscales (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame) with internal consistencies that range from $\alpha = 0.57-0.90$. These are further grouped into three composite subscales measuring emotion-focused (acceptance, use of emotional support, positive reframing, humour, and religion), problem-focused (active coping, use of instrumental support and planning), and dysfunctional coping (venting, self-distraction, denial, behavioural disengagement, self-blame and substance use)¹⁷. The instrument has been successfully used in health-relevant studies in Nigeria¹⁸.
3. Mini international neuropsychiatric interview; is a short, structured diagnostic interview developed for DSM-IV and ICD-10 psychiatric disorders¹⁹. It has a sensitivity is 0.70 and specificity of 0.85, the inter-rater and retest reliabilities are 0.75. MINI has also been widely used in health related studies in Nigeria²⁰. The depression module was used in the study to assess for depressive disorder.

Procedure

Ethical consideration

The permission to carry out this study was obtained from the Research and Ethical committee of the Federal Neuro-Psychiatric Hospital, Yaba, Lagos, and the Research and Ethical committee of the Lagos University Teaching Hospital, Idi-Araba, Lagos. The participants gave a voluntarily written informed consents indicating their willingness to participate in the study after the details of the study had been explained to them. They were also informed of their freedom to opt out of the study and that such decision would not be used against them in any way. High level of confidentiality and anonymity was assured.

Recruitment of participants and data collection

At the out-patient clinics of the study centers, all consecutive caregivers of children and adolescents previously diagnosed with cerebral palsy who met the inclusion criteria and who gave a written informed consent were recruited in to the study. The participants fill the Socio-demographic questionnaire and Brief COPE inventory, which are both self-administered questionnaire, while the depression sections of MINI questionnaire was administered by the researcher. The interview was carried out in a consulting room at the out-patient clinic on a one on one basis. About 6-10 participants were recruited per week and data collection lasted for about five months.

Data management and statistical analysis

The statistical package for social sciences (SPSS) software 20th edition was used for the statistical analysis of the generated data. Chi-square test was used to determine the association between categorical variables while the t-test was used to assess significant difference between two mean values. Regression analyses examined the strength of relationship between type of coping strategy used and depression.

Results

A total of one hundred and thirty-two (132) adult caregivers of children with cerebral palsy participated in this study.

The ages of the participants ranged from 26 to 68 years, with a mean age of 37.57 (± 6.96) years (Table 1). Majority (96.2%) of the participants were female, employed (89.4%), married (91.7%) and were mothers (93.2%). Caregivers who had tertiary level of education were 49.2% of the participants, 38.6% had secondary level of education while 12.1% had primary level of education.

Table 1. Socio-demographic characteristics of primary caregivers and their children – N = 132

Variables	Frequency (n)	Percentage (%)
Age of caregiver in years		
< 30	16	12.1
30-39	62	47.0
40-49	47	35.6
≥ 50	7	5.3
Gender of caregivers		
Male	5	3.8
Female	127	96.2
Religion		
Christianity	72	54.5
Islam	60	45.5
Employment status		
Unemployed	14	10.6
Self-employed	76	57.6
Paid employment	42	31.8
Absence from work due to caregiving of child		
No	26	22.0
Yes	92	78.0
Marital status of caregiver		
Single	3	2.3
Married	121	91.7
Separated	2	1.5
Divorced	1	0.8
Widowed	5	3.7
Relationship to child		
Father	5	3.8
Mother	123	93.2
Others	4	3.0
Level of education		
Primary	16	12.1
Secondary	51	38.6
Tertiary	65	49.3
Age of caregivers children		
≤ 5	85	64.4
6-10	37	28.0
> 10	10	7.6
Gender of caregivers children		
Male	87	65.9
Female	45	34.1

Age of participants' children with cerebral palsy ranged from 2 to 16 years with a mean age of 5.22 (± 2.92). Most (64.4%) of the participants children were within ages 5 years and below, and of the male (65.9%) gender (Table 1).

Most (65.9%) of the participants had been primary caregivers for less than 5 years, 27.3% for between 6 to 10 years, while 6.8% were caregivers for between 11 to 15 years. Eight out of every ten participants (80.3%) had other children to also care for while 19.7% did not have other children. A quarter of the participants (25.8%) reported to have been blamed for the child's disability while the prevalence of current depressive episode among primary care givers of children with cerebral palsy was 20.5% (Table 2).

Caregivers of children within the ages 6 and 10 years have a statistically higher rate of depression (32.4% had depression) compared to caregivers of children less than 5 years (17.6%) and caregivers of children above 10 years (0.0%) ($p = 0.044$). Also, participants who had been caregivers for between 6 to 10 years were more likely to be depressed than those who were caregivers for less than 5 years (17.2%) or more than 10 years (0.0%) ($p = 0.038$). Similarly, participants who had been blamed for child's disability (44.1%) had a statistically higher rate of depression than those who had not been blamed (12.2%) in the past. ($p \leq 0.001$). Among participants who had been blamed for child's disability, those who were blamed by their relatives (64.3%) were statistically more likely to have higher rate of depression than those who were blamed by their spouses (33.3%) and others (friends, neighbor) (25.0%), ($p \leq 0.001$) (Table 3).

The mean score of active coping was significantly ($p \leq 0.001$) lower in participants with depression (6.33 ± 0.78) as compared to those without depression (7.29 ± 0.86). Similarly, planning as a coping style has a statistically ($p \leq 0.001$) lower mean score (5.70 ± 1.87) in depressed participant compared to those without depression $6.90 (\pm 1.01)$ (Table 4).

Use of instrumental support ($p \leq 0.001$), positive reframing ($p \leq 0.001$), self-distraction ($p \leq 0.001$) and denial ($p \leq 0.001$) as coping styles were also found to have statistically significant relationships with depression. Participants with depression had lower mean score in use of instrumental support $5.11 (\pm 1.37)$ and positive reframing $4.19 (\pm 1.00)$ compared to those without depression who had a higher mean score of $6.43 (\pm 1.02)$ and $6.45 (\pm 1.15)$ respectively. On the contrary, participants with depression had a significantly higher

mean score in self-distraction $5.00 (\pm 1.64)$ and denial $4.33 (\pm 1.90)$ compared to those without depression who had a lower mean score of $3.73 (\pm 1.50)$ and $2.99 (\pm 1.23)$ respectively.

The mean score of humor in participants with depression was $2.41 (\pm 0.75)$; this was statistically lower than the mean score in those without depression $3.48 (\pm 1.82)$ ($p = 0.004$). Conversely, behavioural disengagement ($p \leq 0.001$) and self-blame ($p \leq 0.001$) have a statistically significant higher mean scores in participants with depression (3.63 ± 1.36 and 4.15 ± 1.81 respectively). There was no statistically significant relationship between depression and religion ($p = 0.380$), acceptance ($p = 0.609$), use of emotional support ($p = 0.901$), venting ($p = 0.080$), and substance use ($p = 0.437$).

Depression had a strong negative correlation with active coping ($r = -0.415$), planning ($r = -0.432$), and positive reframing ($r = -0.594$), and a weak negative correlation with humor ($r = -0.239$). But a strong positive correlation with use of instrumental support ($r = 0.421$) and self-blame ($r = 0.448$), and a moderate positive correlation with denial ($r = 0.313$), and behavioral disengagement ($r = 0.308$).

Emotion-focused ($p \leq 0.001$), problem focused ($p \leq 0.001$) and dysfunctional coping ($p \leq 0.001$) were found to have statistically significant relationships with depression. Both emotion-focused ($r = -0.361$) and problem-focused ($r = -0.576$) coping style had a strong negative correlation with depression. While dysfunctional coping style had a strong positive correlation with depression ($r = 0.489$) (Table 4).

Discussion

The general aim of this study was to determine the relationship between the different types of coping strategies and presence of depression in caregivers of children with cerebral palsy.

Caregivers of children with cerebral palsy have been reported in previous studies to be more prone to psychological disturbances when compared to caregivers of normally developing children, and majority of them have symptoms of depression. This has been attributed to greater parenting stress and lower satisfaction with life found in these group of caregivers². The prevalence of depression in the current study was 20.5%. This is lower than prevalence of depression reported in caregiver of children with cerebral palsy in previous studies^{9,21,22}. A prevalence of 45.2% was reported in Tunisia and 31% in Brazil^{22,23}. The difference in prevalence between the previous studies and the current study can be due to cultural differences, and may also be due the use of Hospital Anxiety and Depression Scale which is a self-administered rating instrument in the Tunisian and Brazilian study as compared to MINI, an interviewer administered diagnostic instrument was used in the current study. In addition, the sample size in the Tunisian study was 62 and that of Brazil was 82 while the sample size in the current study was 132.

The current study shows that the age of the caregivers children and duration of caregiving has a great impact on the psychological state of caregivers; those whose children were within the ages of 6-10 years had higher rate of depression and also, caregivers who have been caring for children with cerebral palsy for more than 5 years but less than 11 years were more likely to be depressed than those of lower or higher durations. This may be explained by the fact that reactions to the birth or diagnosis of a disabled child usually progress gradually from an initial feelings of shock and numbness, and then over time leads to a period of helplessness, periods of indifference and anger, at which time they face nearly overwhelming apathy, bitterness and depression^{10,24}.

According to report from previous study, participants with poor marital relationship, inadequate social interaction, isolation and problems with the extended family had a higher rate of depression compared to those without such experiences^{14,25}. The current study shows that caregivers who have been blamed for the child's condition; especially those who were blamed by their relatives (family member) had a higher rate of depression compared to those who had never been blamed. This finding further emphasis the importance of the need for relatives of caregivers of these group of children to avoidance the use of negative comment or ascribing blames.

Table 2. Frequency table of care giving related characteristics and depression – N = 132

Variables	Frequency (n)	Percentage (%)
Duration of caregiving in years		
1-5	87	65.9
6-10	36	27.3
11-15	9	6.8
Presence of other children		
No	26	19.7
Yes	106	80.3
Presence of social support		
No	19	14.4
Yes	113	85.6
Have you been blamed for your child's disability?		
No	98	74.2
Yes	34	25.8
If blamed, by who? (n = 34)		
Spouse	12	35.3
Relatives	14	41.2
Others	8	23.5
Depression		
Present	27	20.5
Absent	105	79.5

Table 3. Association of socio-demographic variable and caregiving characteristics with depression in care giver of children with cerebral palsy – N = 132

Variable	Depression		Total	Statistics		
	Yes n (%)	No n (%)		χ^2	df	<i>p</i>
Age of caregiver in years						
<30	3 (18.8)	13 (81.2)	16	0.350	3	0.950
30-39	13 (21.0)	49 (79.0)	62			
40-49	9 (19.1)	38 (80.9)	47			
≥50	2 (28.6)	5 (71.4)	7			
Age of child in years						
≤5	15 (17.6)	70 (82.4)	85	6.246	2	0.044
6-10	12 (32.4)	25 (67.6)	37			
>10	0 (0.0)	10 (100)	10			
Gender of child						
Male	19 (21.8)	68 (78.2)	87	0.301	1	0.583
Female	8 (17.8)	37 (82.2)	45			
Employment status						
Unemployed	5 (35.7)	9 (64.3)	14	4.524	2	0.104
Self-employed	11 (14.5)	65 (85.5)	76			
Paid employment	11 (26.2)	31 (73.8)	42			
Marital status of caregiver						
Married	24 (19.8)	97 (80.2)	121		0.695*	
Others	3 (20.5)	8 (72.7)	11			
Level of education						
Primary	3 (18.8)	13 (81.2)	16	4.488	2	0.106
Secondary	6 (11.8)	45 (88.2)	51			
Tertiary	18 (27.7)	47 (72.3)	65			
Relationship to child						
Father	0 (0.0)	5 (100)	5	2.372	2	0.305
Mother	26 (21.1)	97 (78.9)	123			
Others	1 (25.0)	3 (75.0)	4			
Absence from work due to caregiving						
No	5 (12.5)	35 (87.5)	40	2.232	1	0.135
Yes	22 (23.9)	70 (76.1)	92			
Duration of caregiving						
1-5 years	15 (17.2)	72 (82.8)	87	6.536	2	0.038
6-10 years	12 (33.3)	24 (66.7)	36			
11-15 years	0 (0.0)	9 (100.0)	9			
Presence of other children						
No	3 (11.5)	23 (88.5)	6	0.282*		
Yes	24 (22.6)	82 (77.4)	106			
Presence of social support						
No	2 (10.5)	17 (89.5)	19	0.361*		
Yes	25 (22.1)	88 (77.9)	113			
Have you been blamed?						
No	12 (12.2)	86 (87.8)	98	15.760	1	< 0.001
Yes	15 (44.1)	19 (55.9)	34			
If blamed, by who? (n = 34)						
Spouse	4 (33.3)	8 (87.8)	12	18.360	2	< 0.001
Relatives	9 (64.3)	5 (35.7)	14			
Others	2 (25.0)	6 (75.0)	8			

Significant P value in bold.

*Fishers exact test (used where observed cell values were small)

Caregivers of children with Cerebral palsy may face many decades of stressful caregiving responsibility; they encounter a variety of challenges such as overcoming the disappointments attendant to the diagnosis, learning to negotiate a system of health and educational networks and developing strategies for guiding the child's overall success^{11,26}. Coping strategies have been postulated as one mechanism

by which parents adapt to the stresses associated with raising a child with a disability. Previous studies have reported an association between better caregiver wellbeing and higher level of problem-focused coping style, while those who used dysfunctional coping style were associated with regular emotional distress like depression^{15,27}. Coping styles like denial and avoidance have also been shown in

Table 4. Association between coping strategies used and depression in primary caregivers of children with cerebral palsy

Variable	Depression		Statistics		
	Yes mean (\pm SD)	No mean (\pm SD)	t	p	r
Religion	7.33 (\pm 0.96)	7.50 (\pm 0.82)	-0.881	0.380	0.491
Active coping	6.33 (\pm 0.78)	7.29 (\pm 0.86)	-5.206	< 0.001	-0.415**
Planning	5.70 (\pm 1.87)	6.90 (\pm 1.01)	-5.621	< 0.001	-0.432**
Acceptance	6.48 (\pm 1.22)	6.32 (\pm 1.47)	0.513	0.609	0.018
Use of emotional support	6.15 (\pm 1.79)	6.19 (\pm 1.51)	-0.125	0.901	-0.012
Use of instrumental support	5.11 (\pm 1.37)	6.43 (\pm 1.02)	-5.567	< 0.001	0.421**
Positive reframing	4.19 (\pm 1.00)	6.45 (\pm 1.15)	-9.334	< 0.001	-0.594**
Venting	4.59 (\pm 1.95)	3.98 (\pm 1.51)	1.762	0.080	0.145
Self-distraction	5.00 (\pm 1.64)	3.73 (\pm 1.50)	3.835	< 0.001	0.297**
Denial	4.33 (\pm 1.90)	2.99 (\pm 1.23)	4.479	< 0.001	0.313**
Humour	2.41 (\pm 0.75)	3.48 (\pm 1.82)	-2.974	0.004	-0.239*
Behavioral disengagement	3.63 (\pm 1.36)	2.69 (\pm 1.99)	4.060	< 0.001	0.308**
Self-blame	4.15 (\pm 1.81)	2.39 (\pm 0.84)	7.379	< 0.001	0.448**
Substance use	2.19 (\pm 0.79)	2.10 (\pm 0.45)	0.780	0.437	.048
Three category model					
Emotion-focused	26.46 (\pm 2.61)	29.72 (\pm 3.78)	-4.200	< 0.001	-0.361**
Problem-focused	17.19 (\pm 1.80)	20.63 (\pm 1.95)	-8.300	< 0.001	-0.576**
Dysfunctional coping	23.74 (\pm 4.19)	17.82 (\pm 3.76)	7.132	< 0.001	0.489**

Significant p value in bold. t = t test. r = spearman's rho (correlation coefficient).

** Significant correlation <0.001.

* Significant correlation <0.05.

literature to confer negative outcomes on caregivers of children with cerebral palsy: as most of these caregivers tend to be depressed^{28,29}.

A study carried out in the united states of America to assess the role of coping strategies in predicting change in parenting efficacy and depression in mothers of adolescents with developmental disability reported that use of active coping, planning and positive reframing reduced the depressive symptoms while behavioral disengagement as a coping strategy tend to worsen depressive symptoms in caregivers of adolescents with disability^{2,15,18,23}. In accordance with this finding, the current study shows that active coping, planning, use of instrumental support, positive reframing and humor have a reverse relationship with depression in caregivers of children with cerebral palsy. While, self-distraction, denial, behavioral disengagement and self-blame had a positive association with presence of depression in this group of people. However, it is surprising that religion was found in the current study not to have any relationship with depression; this is in contrast to a previous study carried out among caregivers of children with disability in Iran that reported a protective impact of religiosity on the wellbeing of mothers of children with intellectual disability. Reasons for this difference may be due to the use of brief cope questionnaire (which measures styles of coping) in the current study as compared to use of Ways of coping questionnaire in the Iranian study. In addition, difference in cultures may also play a role in this disparity.

In the current study, problem-focused strategy was reported to be the more protective against depression compared to dysfunctional coping strategy which exposes the caregivers to a more likelihood of having depression. This is in conformity with previous studies^{23,28,29}. This study further emphasize the report from other study on the importance of use of problem-focused styles like active coping and planning in maintaining psychological wellbeing in stressful conditions. The caregivers' use of problem-focused coping styles helps them alter or improve the source of their caregiving stresses, for example, recovery of some adaptive functions in the affected child. In addition, emotion-focused coping styles help caregivers regulate stressful emotions^{27,28}.

The limitation of this study is that a direct causal inference between depression and coping strategies could not be determined due to the cross-sectional design of the study. But despite this limitation however, the findings from this study may serve as a baseline for comparison in future studies.

In conclusion, the high prevalence of depression and the association found between coping strategies and depression among caregivers of children with CP emphasis the need for regular psychological assessments and interventions among these group of individuals. Their level of depression may be reduced with a subsequent improvement in their QOL if they are trained to identify and utilize more positive coping style.

Disclosure

There is no conflict of interest. All expenses with regards to the research were borne by the authors.

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