

# Maternal Self-rated Capability Status and Its Association with Under-Five Children Morbidity

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## Abstract

**Background:** Under-five morbidity is a significant public health concern in developing countries, and maternal intervention remains vital to achieving under-five optimal health. **Objective:** The study examined the influence of maternal self-rated capability status (SCS) on under-five morbidity in Ibadan North Local Government Area (LGA), Oyo State, Nigeria. **Methods:** The study interviewed 683 nursing mothers surveyed from 20 primary healthcare centers (PHCs) from 13th to 27th September 2018 in the LGA of study. We employed logistic regression models to examine the association of 4 domains of maternal SCS on under-five morbidity incidence controlling for the potential confounding effects of maternal, child, and household sociodemographic attributes. **Results:** Under-five children of mothers with poor status in the knowledge of child morbidity, experience-informed action, child morbidity exposure, and childcare vulnerability domains are, respectively, 497%, 323%, 400%, and 318% more likely to be at risk of morbidity than their peers born to mothers with good status. In addition, the odds of morbidity were lower for children born to women with more than 1 under-five children (AOR: 0.49, 95% CI: 0.27, 0.88), while the odds were higher for those from households that are food-insecure (AOR: 3.16, 95% CI: 1.31, 7.65) and dispose of wastes within the compound (AOR: 2.67, 95% CI: 1.31, 5.45) relative to children in the comparative categories. **Conclusion:** Our findings revealed the significance of maternal SCS as a crucial pathway for understanding and reducing under-five morbidity. Community interventions should prioritize empowering nursing mothers with prevention and care information necessary to reduce the under-five morbidity burden at the community level.

## Keywords

self-rated capability status, childcare vulnerability, child morbidity exposure, child morbidity knowledge, under-five morbidity, Nigeria

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## Introduction

Under-five morbidity persists predominantly in middle and low-income countries, and Sub-Saharan Africa ranked among the countries experiencing high under-five mortality induced by high morbidity incidences.<sup>1</sup> Nigeria has reported a significant reduction in the under-five mortality rate attributed to improved coverage of campaigns targeting child survival; however, the problem continues to exist that 1 in every 8 children dies before age 5 in Nigeria.<sup>2</sup> The published evidence highlights the need to bolster the effort to abate under-five morbidity to the barest minimum to support healthcare practitioners' and government efforts. Hence, numerous studies have consistently linked childhood illnesses as the leading cause of under-five morbidity.<sup>3</sup>

Existing literature has explored the nagging problem of under-five children morbidity and the associated risk factors. A significant number of under-five children's risk factors are nutritional imbalances from malnutrition, causing underweight, stunting, and wasting, leading to morbidity.<sup>4-6</sup>

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Asides pneumonia morbidity affecting children globally,<sup>7</sup> diarrhea is another contributor to under-five morbidity. Diarrhea morbidity incidences of under-five children are attributed to parents' differential sociodemographic characteristics and households' environmental and behavioral function.<sup>2,8</sup> Peculiar to Nigeria, the probability of child diarrhea was higher for children with younger mothers below 35 years old.<sup>9</sup> Despite the control and intervention method adopted for diarrhea incidences, the burden remains relatively high among children.<sup>10</sup> Other morbidity incidences peculiar to under-five children are associated with mothers involved in teenage pregnancy,<sup>11</sup> low birth weight,<sup>12</sup> immunization participation,<sup>13</sup> and acute respiratory infection.<sup>14</sup>

The underpinning evidence falls back on maternal actions as a vital instrument in supporting various interventions to reduce under-five morbidity. In the face of governmental investments, pediatricians, primary and community healthcare workers, the maternal role is inevitable, and it requires extensive attention to understand maternal action and inactions. However, there is a paucity of scientific evidence-centered on the influence of maternal self-rated capability status (SCS) on under-five morbidity. The maternal self-rated capability status reflects the personal assessment of how confident and in control mothers resolve under-five health issues. Like self-rated health (SRH) that measures health based on subjective evaluation,<sup>15</sup> maternal SCS for under-five health presupposes that childcare rests heavily on mothers,<sup>16</sup> and they make the best decision possible for their optimal health.

The health structure and management of disease in Nigeria cut across 3 levels of services provided by the federal, state, and local governments, each with autonomy. The local government advances health services at the primary-level by providing child and maternal care, health education, promotion, and intervention to families through primary healthcare centers (PHCs). The direct service coordinated by the local government enables mothers to easily access affordable healthcare services to reduce the burden of diseases at the household level. Based on the services provided by the PHCs, they ensure community participation in free immunization and health promotion for underserved communities for the prevention of diseases associated with children. According to the National Ministry of Health report, there are significant barriers to delivering health education, promotion, and intervention in the local governments across Nigeria.<sup>17</sup> Bulk of the intervention and health promotion services rendered at the local governments are supported by UNICEF and Save the Children. However, there has been ongoing action to reduce child morbidity through Diagnose-Intervention-Verify-Adjust (DIVA),<sup>18,19</sup> the Integrated Management of Childhood Illness (IMCI) programs, Integration Maternal Newborn and Child Health Strategy, and revitalization of primary healthcare centers.<sup>20</sup> Other infection specific project is the National Malaria

Strategic Plan coordinated by the Federal Ministry of Health.<sup>21</sup> However, these services' efficacy requires further investigation to ascertain coverage and achievement toward improving under-five health.

The concept of maternal SCS for under-five morbidity is a subjective approach to addressing mothers' level of control concerning under-five health. While there are challenges in managing the under-five morbidity,<sup>22</sup> assessing mothers' instinctive measures to safeguard under-five health may be pivotal in eradicating morbidity in Nigeria and other regions with similar demographics and social structure. Maternal SCS indices purported mothers' level of commitment to ensure that under-five children are not morbidly at risk. By investigating maternal SCS toward under-five morbidity in Nigeria, presents a significant insight into maternal self-confidence and may help reengineer future morbidity prevention framework for under-five children. Thus, investigating maternal SCS may offer a trajectory for healthcare reformation and provide primary healthcare workers in Nigeria templates in educating mothers on the crucial measure to protect under-five from morbidity.

"Self-rated" assessment as an indicator has been explored in diverse contexts and domains. Although most empirical studies focus on SRH, many studies have employed self-rated assessment to measure behavioral factors and outcomes. In an empirical study among birth attendants in Nigeria, birth attendants' self-rated confidence has been adopted to examine maternal and newborn interventions' performance.<sup>23</sup> In a different setting, self-rated food security was explored as a health indicator.<sup>24,25</sup> Similarly, self-rated poverty status reflected households' willingness to utilize free insecticide mosquito nettings as part of malaria morbidity intervention.<sup>26</sup> In general, other empirical studies have adapted "self-rated" in the context of self-rated quality of care among clinicians,<sup>27</sup> and self-rated poverty status of households.<sup>28</sup> Although self-rated assessment is a subjective evaluation, its efficacy as an indicator has shown consistency in understanding behavioral patterns, social, and health concerns.

In scope, the study aims to investigate the influence of maternal self-rated capability status (SCS) on morbidity incidence among under-five children in Ibadan North Local Government Area (LGA) of Oyo State, south-west of Nigeria. Given the multilayered factors associated with under-five morbidity, we further examined the confounding effects of sociodemographic characteristics of the mothers, children, and households on the SCS-child morbidity relations hypothesized. The study will add to scientific evidence of maternal self-rated capability status on under-five morbidity outcomes toward achieving sustainable development goals in regions plagued with a high prevalence of under-five morbidity. Therefore, this study aims to examine the influence of maternal self-rated capability status (SCS) on under-five morbidity.

## Methods

### Study design, Population, and Data Collection

A community-based study was conducted to investigate the maternal SCS associated with under-five morbidity in Ibadan North LGA, Oyo State, Nigeria. The study setting, Ibadan, is the capital city of Oyo State, located in the south-western region of Nigeria. Oyo State has more than 6 million dwellers with more than half of Ibadan residents, including migrants from different ethnic groups in Nigeria. Although the urbanization growth process of Ibadan city has been moderate, the nearness to the megacity of Lagos gave the city historical recognition and industrial vibrancy in Nigeria.<sup>29</sup> Among all the 11 LGAs in Ibadan, we selected Ibadan North being the centrally-located LGA in Ibadan.

**Data collection.** Data were collected between 13th to 27th September 2018 from nursing mothers in clusters of PHCs within the LGA's administrative territories using a convenience sampling approach. In the current study, we recruited nursing mothers through convenience based on past experiences and accessibility in these communities. While the recruitment method yielded a considerable number of respondents, they are nonrepresentative and subject to bias. The respondents' recruitment was facilitated with the support of PHC workers and experience research enumerators. We recruited mothers who visited the PHCs for wellness and immunization visits. During these visits especially scheduled immunization visits in the PHCs, mothers were recruited for voluntary participation. Although other studies have adopted this approach in Ibadan,<sup>30</sup> we covered 20 PHCs in the local government. In all, 700 respondents were interviewed. However, only 683 have complete information necessary for analysis in this study.

**Inclusion and exclusion.** The research respondents of this study were mainly biological mothers. All caregivers and non-biological mothers were excluded from participating in the survey, given the research focus. Meanwhile, data analysis was based on the youngest child of respective mothers, and there were no twin children represented in this study.

**Ethical consideration.** Ethical approval was granted by the Department of Planning, Research, and Statistics Division, Ministry of Health, Oyo State, Nigeria (Ref No.: AD13/479/859<sup>B</sup>). Approval was also received from various heads of each PHCs, and informed consent was obtained directly from the research participants. The research participants were informed of the voluntary nature of participation and were asked to respond to the research questionnaire's consent question.

### Measures

**Predictors.** This study employed 4 key independent variables to evaluate maternal SCS as it relates to under-five

morbidity, vulnerability, prevention or care attitudes, and behaviors after an extensive review of the literature.<sup>28,31-35</sup> We consider 4 SCS dimensions: child morbidity knowledge, experience-informed action, child morbidity exposure, and childcare vulnerability. The SCS was derived via five-point Likert scale responses (comprising 5. Strongly agree, 4. Agree, 3. Undecided, 2. Disagree, and 1. Strongly disagree) to 4 separate questionnaire items with internal reliability Cronbach's alpha of .72. In line with the study assumption and for intuitive reporting, we reclassified the responses as "good" (for "strongly agree" and "agree" responses) and "poor" (for "undecided," "disagree," and "strongly disagree" responses) capability in child morbidity knowledge and experience-informed action domains. For SCS in Child morbidity exposure and Childcare vulnerability "good" (for "strongly disagree" and "disagree" responses) and "poor" (for "undecided," "agree," and "strongly agree" responses) (Table 1, Panel A). We hypothesized that "good" SCS would be associated with lower morbidity incidence for the respondents' youngest children than "poor" SCS.

**Outcome.** The outcome of interest focus on recent episodes of morbidity among the youngest children of the respondents. Given the small scale of the survey, recent morbidity episodes were measured based on the mother's report of any common disease (eg, cough/cold, acute respiratory infection, malaria, and measles) among the focused children group 30 days before the interview. The child health questionnaire (CHQ) was extracted from the phase 8 core questionnaire of the Demographic and Health Surveys program, regarded as a source of maternal and child health information in developing countries.<sup>36</sup> All reported cases of recent morbidity were assigned codes 1 and 0 otherwise to generate descriptive binary outcome "Yes" and "No" for the mother's report of recent under-five morbidity episodes and no report.

**Confounders.** We examined several sociodemographic characteristics of the mother, child, and household in the analysis based on existing literature.<sup>12,37</sup> Mother-specific factors included age, marital status, number of children under-five, child death experience, education (the number of years corresponding to each level of education), and employment status, whereas the child-specific attributes comprised age, sex, prior immunization status, and use of insecticide-treated net (ITN). Meanwhile, at the household level, the characteristics included were household size, wealth status, food security, water source, toilet type, waste disposal, and type of cooking fuel (Table 1, Panel B). Household wealth status was generated using principal component analysis (household wall, electricity connection, television, refrigerator, cable connection, power generating set, pressing iron, fan, bank account) mean value as the cut-off point.

**Table 1.** Measurement of Predictor and Confounding Variables Included in the Estimated Model.

Panel A: Predictors	Definition
Child morbidity knowledge	Knowledge capability status derived from “I make it a responsibility to learn about all child illness”: good ( <i>strongly agree, agree</i> ), poor ( <i>undecided, disagree, strongly disagree</i> )
Experience-informed action	Informed action capability status derived from “I take action based on my older children’s exposure to chronic illness”: good ( <i>strongly agree, agree</i> ), poor ( <i>undecided, disagree, strongly disagree</i> )
Child morbidity exposure	Morbidity exposure capability status derived from “There is great chance that my child(ren) will get exposed to a disease”: good ( <i>strongly disagree, disagree</i> ), poor ( <i>undecided, agree, strongly agree</i> )
Childcare vulnerability	Childcare vulnerability status derived from “I feel helpless every time my children fall sick”: good ( <i>strongly disagree, disagree</i> ), poor ( <i>undecided, agree, strongly agree</i> )
Panel B: Confounders	
Age	Self-reported age in years: 15-24, 25-34, 35-49
Marital status	Self-reported marital status at time of interview: In union ( <i>married, cohabiting, and non-cohabiting union</i> ), and not in union ( <i>single, widowed or divorced</i> )
Children under-five	Self-reported number of children under-five in maternal care: 1, 2+
Experienced child death	Self-reported experience of child death: no, yes
Education	Highest level attained: tertiary (up to 4 years or more university education), secondary (7-12 years high school education), primary/none (0-6 years elementary education)
Employment status	Engaged in paid job the last 12 months: employed, unemployed
Child’s age	Age of child in years: $\geq 1$ -year old, $< 1$ -year old
Sex of child	Sex of the child: male, female
Immunization status	Whether child received required doses of basic vaccinations <sup>a</sup> ( <i>ie, BCG, 3 doses of DPT-containing vaccine, 3 doses of polio vaccine [excluding polio vaccine given at birth], and 1 dose of MCV</i> ) according to the national vaccination schedule: complete, incomplete
Slept under ITN	Whether child slept under insecticide-treated net: no, yes
Household size	Number of household members: 5+ members, $< 5$ members
Household wealth status	Household wealth quintile based on principal component analysis: $\leq$ average, $>$ average
Household food security	Whether child gone to sleep without food in the past 30 days: secure, insecure
Household water source	Source of household water: piped/borehole, rainwater/others
Household toilet type	Type of toilet in use by the household: flush/septic tank, pit/others
Household waste disposal	Location of household waste disposal: outside the compound, within the compound
Household cooking fuel type	Self-reported type of cooking fuel in use by the household: gas, kerosene/others

<sup>a</sup>According to the Demographic and Health Survey program classification for most developing countries, including Nigeria (<https://dhsprogram.com/data/Guide-to-DHS-Statistics/Vaccination.htm>).

**Analytical strategy.** To achieve the objectives of this study, both descriptive and analytical procedures were employed. The descriptive component comprised percentage distribution and pictorial representation of the population characteristics and dynamics of recent morbidity incidence among children of respondents. For the analysis, we fitted both unadjusted and adjusted logistic regression models. In all, 6 models were derived. Models 1 to 4 were unadjusted models fitted to examine each of the SCS variables’ unconditional influence on morbidity reports among respondents’ most recent births. While in Model 5, the 4 SCS variables were jointly included, Model 6 added the mother, child, and household’s sociodemographic characteristics to Model 5 intended to isolate the net effects of the mother’s SCS on morbidity occurrence among under-five children. In building these models, we assumed that, collectively, the mother, child, and household’s sociodemographic characteristics would have a

considerably confounding effect on the association between SCS and the outcome. The logistic models’ results were reported as odds ratios (and confidence intervals), whereby values above/below 1 is a comparative category of a specific attribute indicate higher/lower likelihood of the outcome relative to the assigned reference category of the attribute. We evaluated statistical significance using  $P \leq .05$  (*ie, at 95% level of significance*). The analysis was conducted using R statistical computing software.<sup>38</sup>

## Results

The distributions of the 683 participants and patterns of recent morbidity incidence according to the measured characteristics are shown in Table 2, Figures 1 and 2. Table 2 shows that participants aged 25 to 35 years, in a union, attained secondary education and were employed

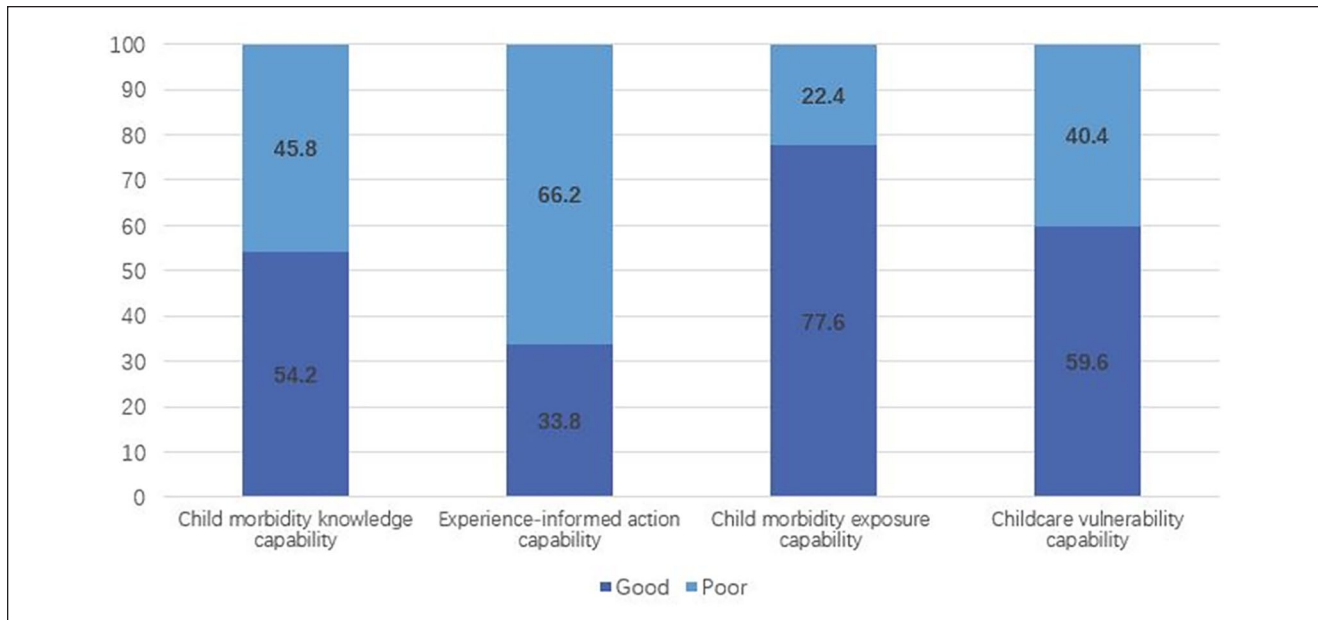


**Table 2.** Distributions of the Study Respondents and Recent Under-Five Morbidity Incidence.

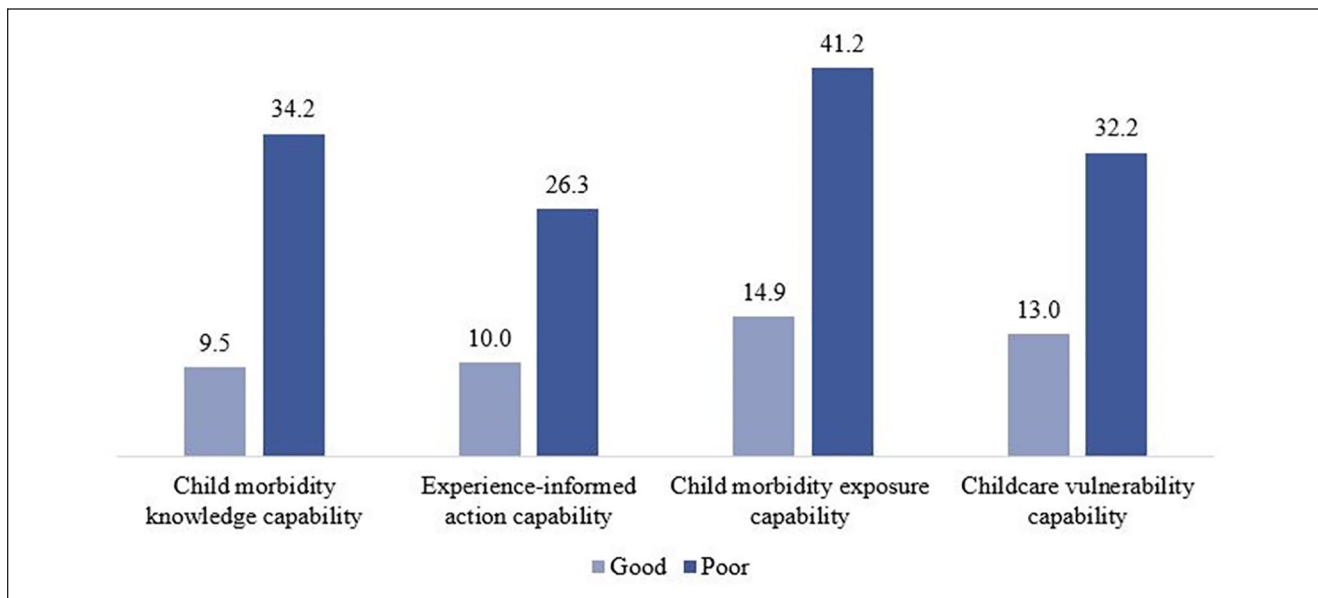
Variables	Categories	Sample N (Col %)	Recent morbidity incidence	
			No N (Row %)	Yes N (Row %)
Age	35-49	105 (15.4)	88 (83.8)	17 (16.2)
	25-34	470 (68.8)	369 (78.5)	101 (21.5)
	15-24	108 (15.8)	84 (77.8)	24 (22.2)
Marital status	In union	614 (89.9)	491 (80.0)	123 (20.0)
	Not in union	69 (10.1)	50 (72.5)	19 (27.5)
Children under-five	1	540 (79.1)	421 (78.0)	119 (22.0)
	2+	143 (20.9)	120 (83.9)	23 (16.1)
Experienced child death	No	641 (93.9)	515 (80.3)	126 (19.7)
	Yes	42 (6.1)	26 (61.9)	16 (38.1)
Education	Tertiary	265 (38.8)	205 (77.4)	60 (22.6)
	Secondary	339 (49.6)	275 (81.1)	64 (18.9)
	Primary/None	79 (11.6)	61 (77.2)	18 (22.8)
Employment status	Employed	520 (76.1)	419 (80.6)	101 (19.4)
	Unemployed	163 (23.9)	122 (74.8)	41 (25.2)
Child's age	≥1-year old	389 (57.0)	306 (78.7)	83 (21.3)
	<1-year old	294 (43.0)	235 (79.9)	59 (20.1)
Sex of child	Male	362 (53.0)	283 (78.2)	79 (21.8)
	Female	321 (47.0)	258 (80.4)	63 (19.6)
Immunization status	Complete	592 (86.7)	465 (78.5)	127 (21.5)
	Incomplete	91 (13.3)	76 (83.5)	15 (16.5)
Slept under ITN	No	349 (51.1)	271 (77.7)	78 (22.3)
	Yes	334 (48.9)	270 (80.8)	64 (19.2)
Household size	5+ members	408 (59.7)	319 (78.2)	89 (21.8)
	<5 members	275 (40.3)	222 (80.7)	53 (19.3)
Household wealth status	≤Average	452 (66.2)	365 (80.8)	87 (19.2)
	>Average	231 (33.8)	176 (76.2)	55 (23.8)
Household food security	Secure	651 (95.3)	521 (80.0)	130 (20.0)
	Insecure	32 (4.7)	20 (62.5)	12 (37.5)
Household water source	Piped/borehole	371 (54.3)	286 (77.1)	85 (22.9)
	Rainwater/others	312 (45.7)	255 (81.7)	57 (18.3)
Household toilet type	Flush/septic tank	611 (89.5)	491 (80.4)	120 (19.6)
	Pit/others	72 (10.5)	50 (69.4)	22 (30.6)
Household waste disposal	Outside compound	628 (91.9)	508 (80.9)	120 (19.1)
	Within compound	55 (8.1)	33 (60.0)	22 (40.0)
Household cooking fuel type	Gas	488 (71.4)	397 (81.4)	91 (18.6)
	Kerosene/others	195 (28.6)	144 (73.8)	51 (26.2)

constituted the majority of the participants. However, Figure 1 shows the distribution of respondents by their SCS across the 4 domains of child health response, while Figure 2 depicts the distribution of recent child morbidity episodes by the respondents' SCS in the 4 domains of child health response being evaluated. In aggregate, the majority of the participants were found to concentrate in the "good" capability category for child health management in all domains except for the "experience-informed action," in which two-thirds of the participants belong to the "poor" capability category (Figure 1).

We assessed recent disease incidence among children by categories in mother's SCS (Figure 2) and background attributes with the distribution in each row summing up to 100 (Table 2). Overall, about one-fifth (20.8%) of the respondents reported incidences of morbidity for their youngest child within the last 30 days before the interview. Meanwhile, the proportions of reported morbidity cases were generally lower for participants with good capability across the 4 domains of child health response considered (Figure 2). Remarkably, however, the highest proportions of morbidity incidence in both the good and poor capability categories



**Figure 1.** Percent distribution of respondents by self-rated capability status in the 4 domains of child health response.



**Figure 2.** Percent distribution of recent morbidity episode by the mother's self-rated capability status in the 4 domains of child health response.

were found in the “child morbidity exposure” domain (14.9% and 41.2%).

Table 3 shows the logistic regression estimates of the relationship between maternal SCS and under-five morbidity. Models 1 to 4 explore the unadjusted odds ratios (UOR) of the effects of each of the 4 SCS measures on the outcome. The outcome in Models 1 to 4 shows that compared with children of mothers with good capability, those mothers with poor SCS in the domains of child morbidity

knowledge, experience-informed action, child morbidity exposure, and childcare vulnerability, respectively, were 497%, 323%, 400%, and 318% significantly more likely to be reported morbid during the 4 weeks preceding the survey ( $P < .01$ ). All the 4 SCS variables were jointly considered in Model 5 to examine their independent influence on child morbidity while holding the other 3 dimensions constant. The partial adjustment has significantly modifying effects on the relative odds of morbidity with considerable

**Table 3.** Logistic Regression Odds Ratios of Under-Five Morbidity Incidence Associated with Maternal Self-Rated Capability Status, Adjusted for Maternal, Child, and Household's Sociodemographic Characteristics; Ibadan North LGA, Oyo State, Nigeria.

Variables	Categories	Models 1-4	Model 5	Model 6
		UOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Child morbidity knowledge SCS	Good			
	Poor	4.97 (3.27, 7.56)**	2.67 (1.53, 4.65)**	3.05 (1.66, 5.60)**
Experience-informed action SCS	Good			
	Poor	3.23 (2.00, 5.22)**	1.40 (0.80, 2.44)	1.86 (0.99, 3.48)
Child morbidity exposure SCS	Good			
	Poor	4.00 (2.68, 5.97)**	1.78 (1.11, 2.85)*	1.80 (1.02, 3.17)*
Childcare vulnerability SCS	Good			
	Poor	3.18 (2.17, 4.66)**	1.48 (0.94, 2.32)	1.71 (1.02, 2.87)*
Age	35-49			
	25-34			1.30 (0.67, 2.54)
	15-24			0.92 (0.38, 2.25)
Marital status	In union			
	Not in union			0.78 (0.40, 1.50)
Children under-five	1			
	2+			0.49 (0.27, 0.88)*
Experienced child death	No			
	Yes			1.49 (0.71, 3.16)
Education	Tertiary			
	Secondary			0.75 (0.43, 1.30)
	Primary/none			0.92 (0.42, 2.03)
Employment status	Employed			
	Unemployed			0.88 (0.53, 1.45)
Child's age	≥1-year old			
	<1-year old			0.95 (0.58, 1.53)
Sex of child	Male			
	Female			0.92 (0.60, 1.40)
Immunization status	Complete			
	Incomplete			0.66 (0.34, 1.28)
Slept under ITN	No			
	Yes			0.65 (0.40, 1.05)
Household size	5+ members			
	<5 members			0.89 (0.56, 1.42)
Household wealth status	≤Average			
	>Average			1.07 (0.59, 1.96)
Household food security	Secure			
	Insecure			3.16 (1.31, 7.65)*
Household water source	Piped/borehole			
	Rainwater/others			1.28 (0.81, 2.01)
Household toilet type	Flush/septic tank			
	Pit/others			1.29 (0.61, 2.70)
Household waste disposal	Outside compound			
	Within compound			2.67 (1.31, 5.45)**
Household cooking fuel type	Gas			
	Kerosene/others			0.79 (0.41, 1.55)

Abbreviations: UOR, unadjusted odds ratios; AOR, adjusted odds ratios; 95% CI, 95% confidence intervals; (ref.), reference category.

Models 1: Unadjusted effect of child morbidity knowledge SCS on the outcome;

Model 2: Unadjusted effect of experience-informed action SCS on the outcome;

Model 3: Unadjusted effect of child morbidity exposure SCS on the outcome;

Model 4: Unadjusted effect of childcare vulnerability SCS on the outcome;

Model 5: Simultaneous adjustment for SCS variables in Models 1 to 4;

Model 6: The full model; adjusted Model 5 for mother, child, and household's sociodemographic characteristics.

\* $P < .05$ . \*\* $P < .01$ .

reductions in the higher likelihoods of morbidity among children born to mothers with poor SCS relative to those mothers with good SCS and loss of significance in experienced-informed action and childcare vulnerability domains, respectively. Meanwhile, in the full model (Model 6), upward changes in greater odds of morbidity across poor SCS categories as compared with good SCS were observed in the 4 domains (even though the experienced-informed action maintained no significance) when mother, child, and household sociodemographic variables were introduced in the full model (Model 6). The results suggest that the whole model offered a robust explanation of the association between maternal SCS and child morbidity among the interviewed participants.

Additionally, the odds of child morbidity were lower for women with more than 1 under-five children (AOR: 0.49, 95% CI: 0.27, 0.88). However, the results also indicated that children from households that are food insecure (AOR: 3.16, 95% CI: 1.31, 7.65) and in which wastes are disposed-off within the compound (AOR: 2.67, 95% CI: 1.31, 5.45) are more susceptible to morbidity relative to their peers from food secure households and in which wastes are deposited outside the compound.

## Discussion

This study's primary objective was to establish the strength of maternal self-rated capability status in association with under-five morbidity. Although this study is the first to adopt this research approach, the outcome elucidates the importance of maternal SCS in explaining under-five morbidity experience in the community investigated. Building on the analytical result, we established that under-five children of mothers with poor SCS were significantly at risk of morbidity than mothers with good SCS. Similarly, key household characteristics provided insightful findings in examining under-five morbidity incidences.

The domain accessing maternal self-rated capability status on knowledge of under-five morbidity shows that under-five children of mothers with poor SCS in this category have a 497% chance of morbidity. The maternal knowledge of under-five morbidity has been in empirical discourse as a crucial mediator in abating under-five morbidity.<sup>31,39</sup> Mothers making it a responsibility to learn about all forms of childhood illnesses and diseases are positioned to identify symptoms early and seek necessary medical help for their under-five child. Poor maternal self-rated knowledge of under-five morbidity means there is a dearth of information required to take health actions that may further affect other areas of maternal child practice, healthcare choice, and the timeliness of seeking medical attention. Although many diseases cause under-five morbidity, children of mothers with substantial knowledge of under-five diseases are less vulnerable to morbidity.

Evidence from the research finding shows that the number of under-five children under maternal care significantly determines the risk of under-five morbidity. Inadequate maternal self-rated experience status based on older children's exposure to diseases may have shown that under-five children are morbidly at risk; it also suggested that other factors may be responsible for morbidity exposure. For example, a first-time mother may lack past under-five morbidity experiences and subsequently result in low self-rated informed experience. Having raised an under-five child previously will improve mothers' expertise toward making the best decision to reduce morbidity. However, this assertion does not favor first-time mothers. Maternal self-rated experience status, if adequate, minimizes the risk of morbidity for under-five children in a triple fold.

A mother's belief about an under-five child's exposure to disease accesses the relationship of SCS of child vulnerability on morbidity. Although mothers' beliefs about child exposure may appear to be dynamic from a cultural and religious perspective, belief and culture are critical under-five health indicators in sub-Saharan Africa. According to an investigation accessing the delay in seeking medical attention for under-five children in South-Eastern Nigeria, belief and culture were responsible for impeding medical treatment.<sup>22</sup> However, based on the premise of the current research, the methodological approach identified mothers who disagreed on a question relating to high risk of under-five morbidity vulnerability as good SCS since higher perceived child vulnerability is profound among parents of unhealthy children.<sup>40</sup> We found that under-five children of mothers with good SCS of child exposure to morbidity were 400% less likely to experience morbidity. In contrast, under-five children of mothers who agreed to child vulnerability experienced more morbidity, which supports the proof that maternal perceived child vulnerability increases parents' report of child morbidity and hospital visits.<sup>41</sup>

The independent model assessing maternal SCS on their childcare vulnerability shows that under-five children of mothers who reported vulnerability toward childcare are 3 times more morbidly at risk. The childcare vulnerability measured in the context of maternal helplessness when dealing with under-five morbidity portrays mothers as powerless or incapable in dealing with the health situation. Having earlier indicated that women have autonomy as the caretaker of children in the family, they are expected to be in control and assertive in handling child health. However, women who lack control and helpless are more likely to have children who experience morbidity.<sup>42</sup> In support of this evidence, mothers faced with a morbid child undergo hysteria, emotional distress, and subsequently become helpless seeing the child's deteriorating condition.<sup>43</sup>

In aggregation, the findings across all maternal SCS on under-five morbidity show that under-five children experience more morbidity when mothers have low self-rated



capabilities on knowledge of child morbidity and child morbidity exposure. The interaction across these domains shows the strength of having adequate capabilities to safeguard under-five against morbidity. Although the variable responsible for measuring maternal SCS on experienced-informed action and childcare vulnerability was not statistically significant in Model 5, there was an apparent reduction in morbidity among under-five children.

Finally, the maternal, child, and household sociodemographic variables in conjunction with maternal self-rated capability status were important for under-five morbidity exposure. Judging by the result of maternal self-rated capability status influence on under-five morbidity, the number of under-five children under each mother's care, waste disposal approach, and food security were consequential to under-five morbidity. We argue that the number of under-five children under the care of a mother may significantly improve childcare knowledge and subsequently reduce the risk of morbidity. However, contrary to our findings where an under-five child of a mother with 1 child was morbidly at risk, other studies have established that the number of biological children born by a mother may be a risk factor for child survival.<sup>44</sup> While mothers show the capacity to protect their under-five from morbidity, their choices and actions are equally crucial. The poor hygiene practices corroborate these maternal inadequacies and food insecurity in the communities under investigation, where other studies have established that under-five children at risk of morbidity are food insecure,<sup>45,46</sup> and household practice are unhygienic.<sup>47</sup> In advancing maternal SCS to reduce under-five morbidity, the failure to implement hygienic practices and ensure food safety, the consequential result is seen in under-five morbidity.

Overall, the present study's policy and research implication underscore the need to improve maternal self-rated capability status. Achieving improvement rests heavily on the current maternal and child health programs obtainable in Nigeria and the community in focus. As the primary healthcare system is family-oriented, primary healthcare workers should reeducate mothers throughout prenatal, childbirth, and postnatal visitation. Some of the key focal points for mothers' re-education should be pivoted at disease and symptom identification. Identifying symptoms and diseases peculiar to under-five children would help mothers channel their actions toward making the right decision. Also, for more precision, since the coverage of government child morbidity intervention programs is scanty in the local government, further research is advised to ascertain the progress. Besides, government programs at the community level should provide information to mothers necessary for safeguarding against under-five morbidity. This information should be freely available with extensive coverage of the communities. The government should consider embarking on a nationwide review of under-five health programs in

the primary healthcare centers to evaluate performance and limitations to facilitate under-five health reformation in the local communities.

There are considerable limitations in this study. While this research exemplifies the effect of maternal self-rated capability status on under-five morbidity, care must be taken when generalizing the findings. First, the methodological limitations based on the convenience sampling approach should be considered when interpreting the research result. Although we validated the construct of maternal self-rated capability status and were able to adjudicate the direction of under-five morbidity, they were self-constructed by the authors. Therefore, we encourage that this approach is replicated in different settings to provide robust empirical evidence. Lastly, the analysis did not include maternal and child nutritional status, which are vital indicators of health. Future studies should entail these 2 variables.

## Conclusion

Our findings revealed the significance of maternal self-rated capability status as a critical pathway for understanding and reducing under-five morbidity. Community interventions should prioritize empowering nursing mothers with prevention and care information necessary to mitigate the community level's under-five morbidity burden.

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