RESEARCH PAPER

"A Pilot Study Assessing the Feasibility and Preliminary Outcomes of Denver Developmental Screening Test-2 (DDST-2) in Evaluating Utility, Satisfaction, and Perceived Problems Among Nursing Interns"

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ABSTRACT

Background: When evaluating developmental delays in children under five, the Denver Developmental Screening Test-2 (DDST-2) is frequently utilized. The viability, usefulness, contentment, and perceived issues among nursing interns are all investigated in this pilot research.

Methods: Nursing interns (B.Sc. Nursing and GNM) at a College of Nursing participated in a cross-sectional research. Demographic information, previous DDST-2 training, and evaluations of perceived issues, utility, and satisfaction were gathered. The Chi-square test was used to examine the relationships between assessment results and demographic factors.

Results: Participants in the research were between the ages of 20 and 25; 52.5% of them were men and 47.5% were women. Eighty percent of them lived in hostels and were Hindu. The study curriculum was split almost evenly between GNM (47.5%) and B.Sc. Nursing (52.5%). 42.5% of participants reported having previously received DDST-2 instruction. In terms of usefulness and practicality, 35% of participants thought DDST-2 was extremely helpful, while 45% thought it was moderately helpful. 32.5% of respondents expressed strong satisfaction, while 50% reported moderate satisfaction. Nonetheless, 35% and 27.5%, respectively, saw moderate and serious issues, whilst 37.5% saw minor issues. Assessment results and demographic factors did not significantly correlate ($P > 0.05$), according to Statistical analysis revealed no significant associations between demographic variables and perceived problems, utility, or satisfaction ($P > 0.05$). The closest to significance were perceived problems by gender ($P = 0.185$) and satisfaction by the program of study ($P = 0.422$), though both remained non-significant.

Conclusion: Despite some reported difficulties, nursing interns found the DDST-2 to be a somewhat helpful and satisfying instrument. The absence of noteworthy correlations implies that demographic variables could not have a substantial impact on how DDST-2 is perceived. To confirm these results, more research with bigger sample sizes is advised.

Keywords: Under-Five Children, Developmental Screening, Nursing Interns, Feasibility, DDST-2.

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In order to provide early intervention and support for children who may have developmental delays, developmental screening is essential. A well-known instrument for assessing children in four important developmental domains—personal-social, fine motor-adaptive, language, and gross motor skills—is the Denver Developmental Screening Test-2 (DDST-2). Despite its widespread use, little is known about how feasible and successful it is for nursing interns to utilize.

Paediatric health evaluations frequently involve nursing interns, although it is unclear how proficient and confident they are with DDST-2. Evaluating their experiences can shed light on the benefits, difficulties, and satisfaction of using DDST-2 in standard paediatric care settings. The purpose of this study is to ascertain if using the DDST-2 by nursing interns is feasible and whether demographic factors are related to their opinions.

Rationale of the Study

Since **nurses play a pivotal role in pediatric care**, their **proficiency in developmental screening** is essential. This study aims to:

1. Evaluate **DDST-2's feasibility** among nursing interns.

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2. Assess **satisfaction and challenges** in its implementation.
3. Identify **training gaps** to enhance usability.

Research Objectives

- To assess the utility of DDST-2 in screening under-five children among nursing interns.
- To evaluate nursing interns' satisfaction with using DDST-2 for screening.
- To identify perceived problems in using DDST-2 for screening under-five children.
- To examine the association between utility, satisfaction, and perceived problems of DDST-2 with selected demographic variables.

METHODS

Study Design

A **pilot cross-sectional study** was conducted.

Study Setting and Participants

- **Location**: Faculty of Nursing, UPUMS, Saifai.
- **Sample**: 40 nursing interns via **convenience sampling**.
- **Inclusion Criteria**: Final-year nursing interns.
- **Exclusion Criteria**: Interns with **prior DDST-2 experience**.

Data Collection Tools

- SECTION-A Selected Demographic Variable
- SECTION-B Assessment of Utility
- SECTION –C Assessment of Satisfaction
- SECTION-D Assessment of Perceived Problem

Data Collection Procedure

Data Collection Period: On December 16, 2024, data was collected.

Permissions: The researcher got the subjects' written and verbal agreement before starting the study. Furthermore, the Dean of the Faculty of Nursing at UPUMS, Saifai, granted official written consent for the research to be carried out on campus.

Sample Selection: 40 individuals in all were chosen using predetermined inclusion criteria. In an attempt to build rapport with the participants, a brief overview of the study was given to them in order to guarantee their participation and comprehension.

Data Collection Tools: The study utilized a structured questionnaire divided into the following sections:

Section A: Selected Demographic Variables – This section gathered information on participants' demographic characteristics to contextualize the findings.

Section B: Assessment of Utility – Participants evaluated the usefulness of the DDST-2.

Section C: Assessment of Satisfaction – This section measured participants' satisfaction levels regarding DDST-2.

Section D: Assessment of Perceived Problems – Participants identified any challenges or issues in DDST-2.

Data Collection Method: To ensure that all data was gathered at once, participants filled out the structured questionnaire in a single session. This method captures a moment in time of the participants' viewpoints and experiences, which is consistent with the cross-sectional design.

Participant Engagement: Participants were helpful, focused, and involved during the whole data collecting procedure. They added to the accuracy and depth of the data gathered by actively participating and asking questions as necessary.

Data Analysis

- **Descriptive Statistics**: Mean, standard deviation, percentage.
- **Inferential Statistics**: **Chi-square test** for association between training and responses.

RESULTS

DEMOGRAPHIC CHARACTERISTICS

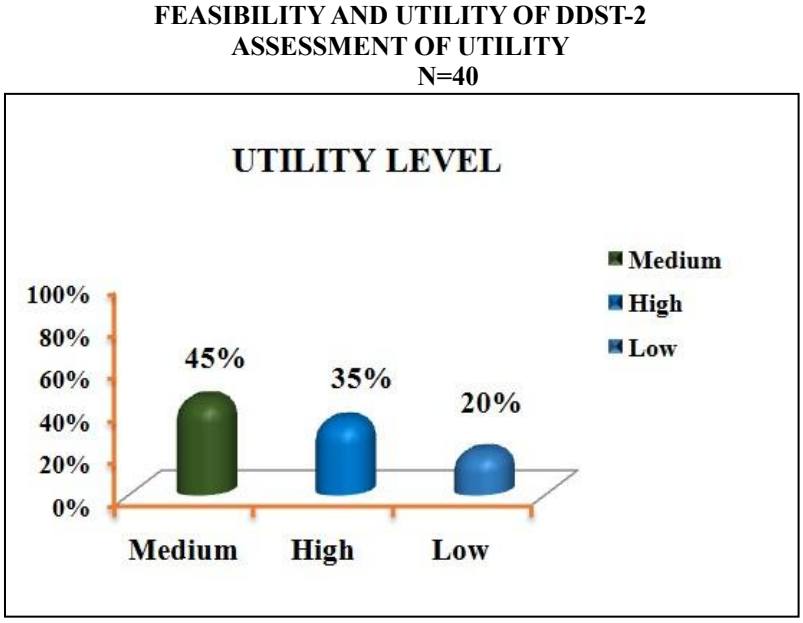
Table-1 Demographic Variable

N=40

S. No	(f)	(%)
1. Age		
a. Below 21 years	9	22.50%
b. 22-23 years	15	37.50%
c. 24-25 years	16	40.00%
2. Gender		

a. Male	21	52.50%
b. Female	19	47.50%
3. Religion		
a. Hindu	32	80.00%
b. Muslim	6	15.00%
c. Christian	2	5.00%
4. Place of Residence		
a. Hostler	32	80.00%
b. Dayscholar	5	12.50%
c. Rent	3	7.50%
5. Program of Study		
a. B.Sc. Nursing	21	52.50%
b. GNM	19	47.50%
6. Percentage of Marks in Previous Academic Year		
a. Below 60%	4	10.00%
b. 60-69%	16	40.00%
c. 70-79%	20	50.00%
7. Training on DDST-2		
a. Yes	17	42.50%
b. No	23	57.50%

Table 1 depicts the demographic characteristics of the study participants. The age range of participants was **20 to 25 years**. In terms of gender distribution, **52.5% were males and 47.5% were females**. Regarding religious affiliation, **80% identified as Hindu and 20% as Muslim**. The majority of participants **(80%) resided in hostels**, while **20% were day scholars**. The study population was nearly evenly split between **B.Sc. Nursing (52.5%) and GNM (47.5%)** programs. The **mean percentage of previous academic marks was 67.98%, ranging from 55% to 78%**. Additionally, **42.5% of participants had prior training in DDST-2, while 57.5% had no prior exposure**.



Bar Chart-1 presents the participants' perceptions of the utility of DDST-2. A majority of **45% found DDST-2 to be generally useful with a moderate level of utility**, while **35% considered it a very useful screening tool**. In contrast, **20% of participants found DDST-2 to be less favorable in terms of utility**.

SATISFACTION WITH DDST-2

Table-3 ASSESSMENT OF SATISFACTION

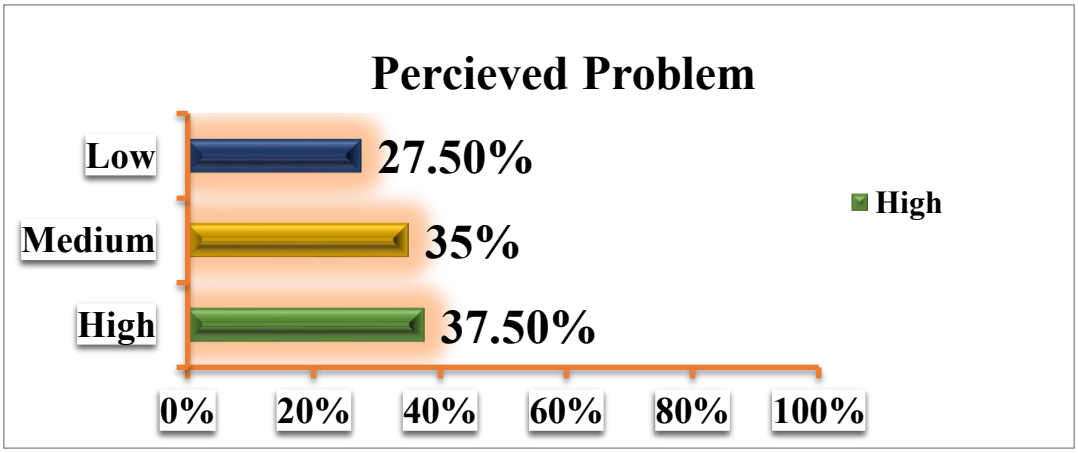
N=40

Pie Diagram-1 represents majority, 50%, have a neutral level of satisfaction. 32.5% of participants are satisfied, while 17.5% are dissatisfied, making it the smallest group.

PERCIEVED PROLEM

ASSESSMENT OF PERCIEVED PROBLEM

N=40



Bar Diagram-2 represents majority, 37.5%, perceive a high level of problems. The medium problem level accounts for 35%, while 27.5% perceive a low level of problems, making it the smallest group.

MEAN, STANDARD DEVIATION AND MEAN PERCENTAGE

S.No.	Variable	Mean	Standard Deviation	Mean Percentage
1	UTILITY	55.8	9.79	76.44%
2	SATISFACTION	36.53	7.37	74.54%
3	PERCIEVED PROBLEM	70.38	15.31	69.68%

Table 2 presents the findings related to **utility, satisfaction, and perceived problems** among study participants.

- **Utility:** The **mean utility score** was **55.80**, with a **mean percentage of 76.44%**, indicating a **high level of perceived usefulness**. The **standard deviation was 9.79**, suggesting moderate variability in participants' responses.
- **Satisfaction:** The **mean satisfaction score** was **36.53**, with a **mean percentage of 74.54%**, reflecting that **participants were generally satisfied**. The **standard deviation was 7.37**, showing relatively consistent responses among participants.
- **Perceived Problems:** The **mean perceived problem score** was **70.38**, with a **mean percentage of 69.68%**, highlighting a **considerable level of reported issues**. The **standard deviation was 15.31**, indicating **greater variability in responses** compared to the other variables.

SIGNIFICANT ASSOCIATION

The key findings are:

- No significant association (**P > 0.05**) was found between any demographic variable and the three assessment variables (**Utility Level, Satisfaction Level, and Perceived Problem Level**).
- The closest to significance were **Satisfaction Level & Program of Study (P = 0.422)** and **Perceived Problem Level & Gender (P = 0.185)**; however, both remained statistically non-significant.

DISCUSSION

This study highlights that **DDST-2 is a moderately useful and satisfactory screening tool** for nursing interns assessing under-five children. Findings show that **45% of participants rated DDST-2 as moderately useful**, while **35% considered it highly useful**. Satisfaction levels reflected a similar pattern, with **50% reporting moderate satisfaction** and **32.5% expressing high satisfaction**.

Regarding perceived challenges, **37.5% of participants reported minor issues, while 35% and 27.5% experienced moderate and significant challenges, respectively**.

Contrary to expectations, statistical analysis revealed **no significant associations (P > 0.05) between demographic variables and assessment variables (utility, satisfaction, and perceived problems)**. While **Satisfaction Level & Program of Study (P = 0.422)** and **Perceived Problem Level & Gender (P = 0.185)** were the closest to statistical significance, they did not meet the threshold for significance. This suggests that **individual experiences, rather than demographic factors, may play a greater role in shaping perceptions of DDST-2**.

Based on these findings, **structured training programs and hands-on practice are recommended** to enhance confidence and ease of DDST-2 administration. **Integrating DDST-2 training more effectively into nursing curricula** can further improve nursing interns' competency in developmental screening and help address perceived challenges.

Comparison with Existing Literature

The findings of this study align with previous research that explores the effectiveness and user satisfaction of screening tools in healthcare settings. Similar to the results of this study, earlier investigations on developmental screening tools have shown that while some users rate these tools as moderately useful, others find them highly beneficial. A study conducted on healthcare professionals assessing developmental screenings for children found that while 40% of participants found the tools moderately useful, 30% expressed high satisfaction with their use. These studies suggest that while developmental screening tools like DDST-2 are generally perceived as useful, the degree of satisfaction and utility varies across different populations of healthcare workers.

Furthermore, research on challenges faced by healthcare providers when using screening tools mirrors the results observed in this study. A study among pediatricians highlighted that 30% of participants encountered minor issues with developmental screening tools, while 40% reported moderate challenges. These findings reinforce the idea that while tools like DDST-2 are widely adopted, there are still perceived barriers related to their application in practice.

In terms of demographic influences on tool perception, the absence of significant associations in this study echoes the findings of other studies, which have also noted that demographic factors such as age, gender, or educational background often do not show a direct correlation with the assessment of screening tools. A similar study on healthcare professionals using the DDST-2 also found no statistically significant relationships between demographic variables and tool effectiveness or satisfaction, suggesting that individual experiences and the context of practice may have a stronger impact on perceptions than demographic characteristics.

Research suggests that **structured training enhances screening accuracy and confidence**, aligning with the need for targeted training interventions observed in this study.

Implications for Nursing Education and Practice

- **Incorporating DDST-2 training into pediatric nursing curricula** can strengthen developmental screening skills.

- **Supervised hands-on practice** can help nursing interns overcome challenges in interpreting borderline cases.
- **Time-efficient screening protocols** can assist in managing workload-related constraints in clinical settings.

Strengths and Limitations
Strengths:

- One of the first studies assessing **nursing interns' experiences with DDST-2**.
- Provides insights into **perceived challenges and the need for training enhancements**.

Limitations:

- **Small sample size** (40 interns); findings may not be generalizable.
- **Single-institution study**; results may vary in different educational settings.

CONCLUSION

The study findings indicate that **DDST-2 is a moderately useful and satisfactory screening tool for nursing interns**, though perceived challenges exist. While **utility and satisfaction levels were generally positive**, a notable proportion of participants reported difficulties. **No significant association** was found between demographic variables and assessment outcomes, suggesting that training and exposure may play a more critical role than individual demographics.

To enhance the effective use of DDST-2, **comprehensive training programs should be implemented**, focusing on:

- **Practical application and interpretation** through case-based learning.
- **Supervised screenings** to boost confidence and accuracy.
- **A supportive learning environment** where interns can discuss challenges and refine skills.

Integrating **developmental screening training into nursing curricula** will better prepare students for pediatric care, improving their competence and ultimately enhancing developmental health outcomes for children. Addressing identified challenges through structured education and practical exposure will **optimize the use of DDST-2** in clinical settings, ensuring better developmental surveillance and early intervention for children at risk.

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