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Impact of Upper Limb Injuries in Activities of Daily Living and the Role of Dash Questionnaire for the Adl Stressors in Middle Aged Adults: A Survey Based Study

Neelam Chauhan[1], Oshi Chauhan[2], Mohd. Shoaib[3], Pinki Chauhan[4], Mohd. Sheroon[5]

1. Assistant Professor, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, UP, 244001
   Email Id: 313.neels@gmail.com
2. BPT 4th Year, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, UP, 244001
   Email ID: oshichauhan71@gmail.com
3. BPT 4th Year, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, UP, 244001
   Email ID: mohshoaib888@gmail.com
4. BPT 4th Year, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, UP, 244001
   Email ID: chauhanvishakha2003@gmail.com
5. BPT 4th Year, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, UP, 244001
   Email ID: mohdsehroon22222@gmail.com

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ABSTRACT

Background: Upper limb injuries are far more disruptive than they might appear on the surface. For middle-aged adults juggling work, family, and the early signs of physical aging, an injury to the shoulder, arm, wrist, or hand can quietly unravel the simplest of daily routines — from buttoning a shirt to lifting a grocery bag. Yet these functional struggles are often overlooked in clinical settings, making it essential to understand their true impact on everyday life.

Methodology: This study recruited 180 adults aged 35 to 55 years through convenient sampling in Moradabad, Uttar Pradesh. Participants with confirmed upper limb injuries completed the DASH (Disabilities of the Arm, Shoulder, and Hand) questionnaire along with demographic and injury-related forms. Data were analyzed using SPSS version 20, and given the non-normal distribution confirmed through normality testing, Spearman's correlation was used for statistical analysis.

Analysis: The mean age of participants was 42.86 ± 5.667 years, with males making up 57.2% of the sample. A striking 81.7% reported having an upper limb injury. Spearman's correlation was applied across all key variables, with significant associations emerging at the $p < .01$ level throughout.

Results: Strong correlations ($r = .800$, $p < .01$) were found between upper limb injury and difficulties in daily activities, social participation, symptom burden, and overall DASH scores. Most participants scored 4 or 5 on DASH subscale items, reflecting moderate to severe challenges in routine tasks like dressing, lifting, and occupational engagement.

Discussion: These findings confirm that upper limb injuries reach far beyond physical pain — they chip away at independence, social connection, and emotional wellbeing. While the DASH questionnaire proved

highly effective in capturing functional impairments, the study also highlights its limitations in addressing the deeper psychosocial dimensions of recovery, pointing toward the need for more occupation-centered assessment tools.

Conclusion: Upper limb injuries meaningfully disrupt the daily lives of middle-aged adults across physical, social, and emotional dimensions. The DASH questionnaire stands as a reliable and sensitive tool for measuring these limitations, but true recovery demands more — early screening and rehabilitation programs that treat not just the injured limb, but the whole person behind it.

Keywords: Upper limb injuries, Activities of Daily Living (ADLs), DASH questionnaire, functional limitations, musculoskeletal rehabilitation, middle-aged adults, patient-reported outcomes

INTRODUCTION

Upper limb injuries, which affect the shoulder, arm, elbow, wrist, and hand, can interfere with even the most fundamental everyday activities. The ability of our upper limbs to work properly is essential for tasks like tying a shirt and pouring a cup of tea. In middle-aged adults, who frequently have to balance work, caregiving duties, and the onset of age-related wear and tear, these injuries can be very upsetting. In addition to being vulnerable to overuse injuries and cumulative strain from decades of activity, this population might not have the resilience and recuperation capacity of younger folks.[1,2]

ADLs, such as dressing, cooking, grooming, and tool use, are frequently taken for granted until a person has trouble carrying them out. These once uncomplicated activities can become physically taxing and emotionally frustrating due to an upper limb injury. One of the main causes of disability in working-age populations, especially those in their 40s and 50s, is upper extremity diseases, according to research.[3]

A person's self-esteem, social engagement, and productivity can all suffer when pain, weakness, or lack of coordination make it difficult for them to function independently[4].

In the clinical environment, these injuries are occasionally overlooked despite the evident effects, especially when they don't show up as severe on imaging or don't come under the category of acute trauma. However, a lot of patients say that the ongoing trouble reaching shelves, writing, or carrying groceries is what bothers them the most, not only the pain. Therefore, it is crucial to assess the daily effects of these injuries in addition to their clinical symptoms.[5]

Disabilities of the Arm, Shoulder and Hand (DASH) is a 30-item self-reported survey that measures a person's difficulty performing specific physical tasks and the severity of symptoms such as pain, numbness, or weakness. Unlike many generic health assessments, the DASH is specifically designed for the upper limb and provides a detailed look into how these injuries interfere with everyday function. It is one of the most popular tools for evaluating the functional impact of upper limb disorders.[6]

The DASH is especially useful because it does more than simply list symptoms; it also links them to actual outcomes. If someone has shoulder pain and finds it difficult to write with a pen, open a jar, or sleep through the night, the DASH makes those challenges quantifiable. Clinicians can use this to develop meaningful goals and monitor their progress over time. Researchers can also benefit from it because it offers a uniform method of comparing results across various injury types and treatment modalities.[7,8]

The importance of the DASH becomes even more evident for middle-aged folks. This is the stage of life when a large number of individuals are still working, frequently in physically hard jobs, or running families while taking care of elderly parents or children. In addition to limiting personal comfort, upper limb injuries can interfere with various aspects of life. Regretfully, there is currently a lack of research especially examining how these injuries affect this age group's ADLs and how instruments like the DASH can be used to pinpoint their particular stressors.[9]

Through a survey-based approach, we aim to understand the specific ways upper limb injuries affect middle-aged adults in their daily routines. We also explore how effectively the DASH questionnaire identifies and captures these difficulties, helping to shed light on its practical utility in clinical and rehabilitation settings. By focusing on a population often caught between high functional demands and

emerging health limitations, this research hopes to provide insights that can lead to better care, improved assessments, and more targeted interventions.

The purpose of this study is to determine how well the Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire captures these functional problems and to investigate the practical effects of upper limb injuries on middle-aged people' ability to perform activities of daily living (ADLs). The study uses a survey-based methodology to assess physical limitations and perceived stressors in daily activities in persons with upper limb injuries between the ages of 40 and 65. The study aims to determine which particular domains of ADL impairment are most impacted in this population by comparing self-reported difficulties with DASH scores. This method assesses the DASH's usefulness as a diagnostic and monitoring tool in clinical and rehabilitative settings in addition to improving our knowledge of injury-related disability in a significant working-age population. In the end, the results are intended to assist in the creation of customized intervention plans that give middle-aged people with upper limb disabilities' unique functional requirements top priority.

AIMS AND OBJECTIVES OF THE STUDY

The primary aim of this study is to determine how upper limb injuries affect the capacity of middle-aged adults to carry out their Activities of Daily Living (ADLs) and to evaluate how effectively the Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire identifies functional limitations and everyday stressors associated with such injuries. In pursuit of this aim, the study sets out to assess the overall impact of upper limb injuries on ADL performance, identify specific challenges faced by individuals living with upper limb dysfunction, and examine the practical utility of the DASH questionnaire as a clinical assessment tool. Beyond these primary objectives, the study also seeks to explore the relationship between upper limb injuries and work efficiency in middle-aged adults, generate meaningful insights for physiotherapy and rehabilitation professionals, and contribute toward the development of more patient-centered healthcare planning tools and interventions.

The need for this study stems from a genuine gap in our understanding of how upper limb injuries translate into real-life functional difficulties for middle-aged individuals. This population is often at the height of their professional and personal responsibilities, making any disruption to their physical capabilities particularly consequential. By evaluating the specific stressors that accompany upper limb dysfunction, the study aims to provide a clearer picture of how these injuries interfere with independence and daily functioning. The DASH questionnaire plays a central role in this process, offering a standardized and validated means of capturing patient-reported experiences. The findings are also expected to support evidence-based rehabilitation strategies, inform better healthcare policies, and encourage meaningful workplace modifications that can ease the burden faced by individuals with such injuries.

The importance of this study lies in its potential to bridge the gap between clinical assessment and real-world patient experience. Upper limb injuries frequently compromise a person's ability to perform even the most basic daily tasks — from grooming and dressing to feeding and fulfilling occupational roles — and yet the depth of these functional impairments is often underappreciated in clinical settings. By adopting a structured, survey-based approach, this research contributes to a more comprehensive, evidence-based understanding of patient challenges, empowering healthcare professionals to design rehabilitation programs that are not only medically sound but also deeply responsive to individual needs. Ultimately, this study supports a broader shift toward more compassionate, patient-centered musculoskeletal care — one that prioritizes independence, dignity, and quality of life for middle-aged adults navigating the difficulties of upper limb injury recovery.

HYPOTHESIS:

Null Hypothesis (H_0):

There is no significant relationship between upper limb injuries and functional limitations in daily activities, symptom severity, or social participation among middle-aged adults, and the DASH questionnaire does not effectively capture these impairments.

Alternative Hypothesis (H_1):

Upper limb injuries are significantly associated with increased functional limitations in daily activities, higher symptom severity (e.g., pain, weakness, tingling), and reduced social participation in middle-aged adults, and these impairments are effectively identified using the DASH questionnaire.

METHODOLOGY

This study adopted a quantitative research design, employing a survey-based cross-sectional approach to examine the functional limitations experienced by middle-aged adults with upper limb injuries. This design was chosen for its effectiveness in capturing data at a single point in time across a defined population, making it well-suited for assessing disability levels using standardized outcome measures. A total of 180 subjects were recruited for this study through convenient sampling, a method that allowed for the practical and efficient selection of participants who met the eligibility criteria and were readily accessible to the researcher. The study was conducted at Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, and participants were drawn from the local population of Moradabad. The target age group was 35 to 50 years, encompassing middle-aged adults who are often at a heightened risk for upper limb musculoskeletal injuries due to occupational and physical demands.

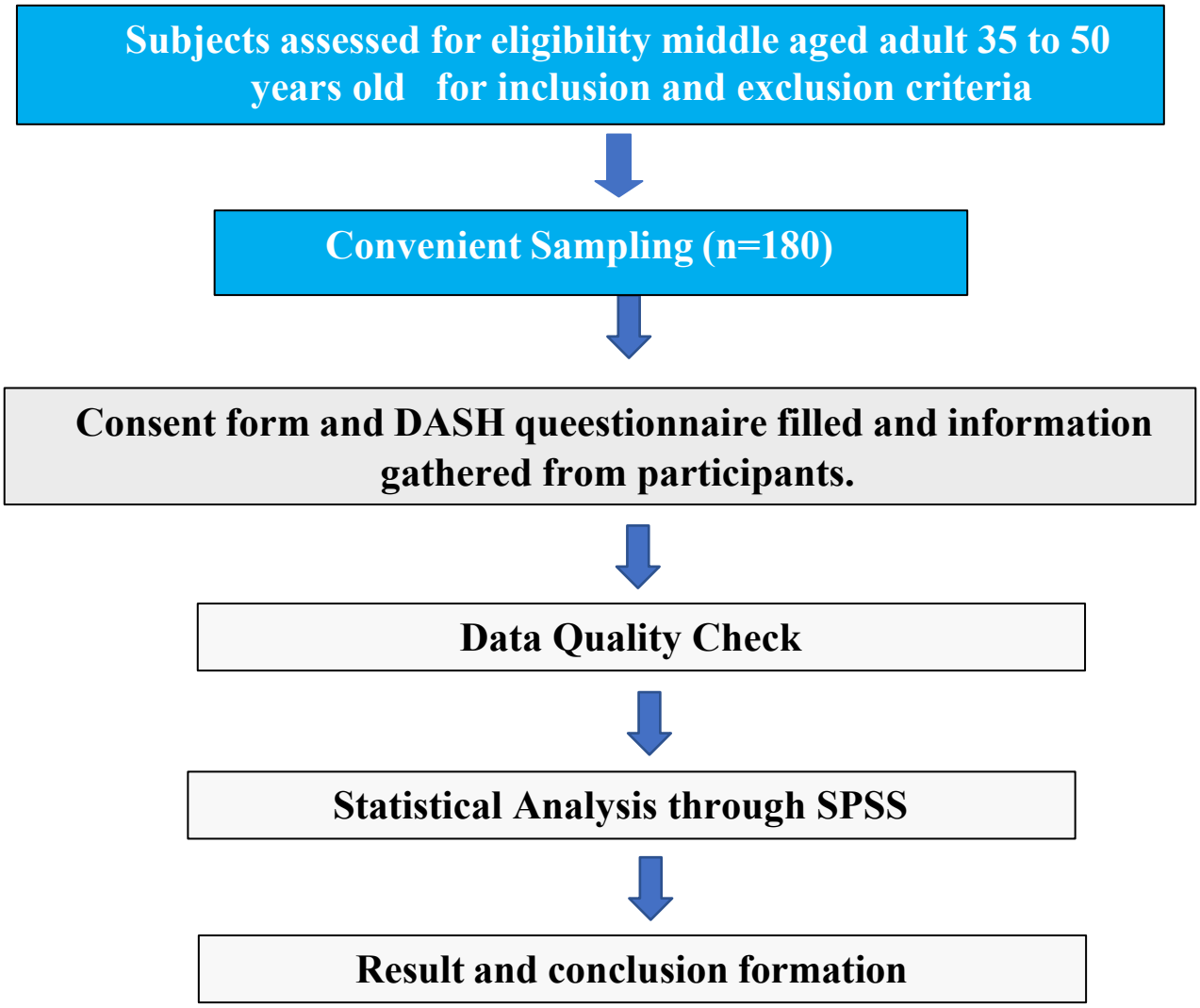
Participants were carefully selected based on a set of well-defined inclusion criteria to ensure the relevance and homogeneity of the study sample. Only middle-aged adults between 35 and 50 years of age with a confirmed history of upper limb injuries were considered eligible. Individuals who had experienced functional limitations in their Activities of Daily Living (ADLs) as a direct result of their injury were included. A formal diagnosis of upper limb musculoskeletal injuries — such as fractures, tendon injuries, rotator cuff tears, or nerve injuries — was a prerequisite for participation. Additionally, all participants were required to be literate enough to read and understand the DASH questionnaire and had to provide their informed consent voluntarily before being enrolled in the study. Residency in Moradabad, Uttar Pradesh was also considered a criterion to maintain geographical consistency within the study population.

To preserve the integrity and validity of the study findings, several exclusion criteria were also established. Individuals outside the 35 to 50 years age bracket were not considered for participation. Those with congenital or developmental upper limb disabilities — as opposed to acquired injuries — were excluded, as their functional limitations arise from fundamentally different circumstances. Participants who had undergone upper limb surgery within the preceding three months were also excluded, since immediate post-surgical effects may not accurately represent long-term functional outcomes. Similarly, individuals with co-existing neurological conditions such as stroke or Parkinson's disease, which independently affect upper limb function, were deemed ineligible. Participants with severe cognitive impairments or psychiatric disorders that could interfere with accurate questionnaire responses were not included. Those unwilling to complete the survey or withhold consent were likewise excluded. Finally, individuals with bilateral upper limb injuries were omitted from the study, as the nature and extent of their ADL limitations may differ considerably from those with unilateral injuries.

The study involved two primary variables. The independent variable was the presence of upper limb injuries in the selected subjects, while the dependent variable was the DASH (Disabilities of the Arm, Shoulder, and Hand) questionnaire score, which served as the primary measure of functional disability and limitation in Activities of Daily Living. Data collection in this study relied on a set of carefully chosen, standardized tools and instruments designed to ensure accuracy, reliability, and consistency throughout the research process. The primary assessment tool used was the DASH Questionnaire, a highly standardized and widely validated outcome measure specifically designed to evaluate functional limitations of the arm, shoulder, and hand in relation to Activities of Daily Living. In addition to the DASH questionnaire, supplementary demographic and injury-related survey forms were administered to collect relevant participant information, including age, gender, occupation, type of injury, duration of injury, and other pertinent details. Data collection was carried out using printed survey forms alongside structured data collection sheets for systematic recording of participant responses. On the administrative and ethical front, an Informed Consent Form was provided to each participant prior to data collection, ensuring their voluntary participation and awareness of the study's purpose.

PROCEDURE:

1) To establish the goal and parameters of the study, the research problem was clearly identified and formulated at the start of the procedure.
2) Using convenience sampling as the method for participant recruitment, 180 people who were easily accessible and satisfied the eligibility requirements were chosen from a target population of middle-aged adults between the ages of 35 and 50. Participants were carefully evaluated to see if they met the predetermined inclusion and exclusion criteria pertinent to the study.
3) To ensure baseline data was gathered methodically, each eligible participant was requested to complete an onset form that documented the condition's history or initial appearance.
4) The DASH (Disabilities of the Arm, Shoulder, and Hand) questionnaire, a validated and standardized instrument for evaluating physical function and symptoms associated with musculoskeletal disorders of the upper limbs, was also filled out by participants.
5) To assess outcome indicators including symptom severity, disability levels, and correlations, all of the data gathered from the forms and questionnaires was combined and statistically analyzed using SPSS software, version 20. Following a thorough interpretation of the SPSS analysis results, conclusions that met the original study topic and objectives were developed.
6) Lastly, the study acknowledged its shortcomings, including sample size restrictions and potential convenience sampling biases, and offered ideas and recommendations for further research to enhance study design, data accuracy, and findings' generalizability.



METHODOLOGY CHART

DATA ANALYSIS

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	180	35	55	42.86	5.667
Valid N (listwise)	180				

Table No. 1:

The age distribution of the 180 study participants is shown in this table. With a mean age of 42.86 years and a standard deviation of 5.67, the participants' ages ranged from 35 to 55. This suggests that there was moderate age variation within the sample, with 0the majority of the participants being middle-aged adults. Every participant supplied accurate age information.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Femal	1	.6	.6	.6
	female	3	1.7	1.7	2.2
	Female	68	37.8	37.8	40.0
	FEMALE	1	.6	.6	40.6
	Male	3	1.7	1.7	42.2
	Male	103	57.2	57.2	99.4
	taharpur	1	.6	.6	100.0
	Total	180	100.0	100.0	

TABLE NO .2:

The gender distribution of the 180 study participants is shown in this table. Male participants made up the majority (57.2%, n = 103), with female participants making up 37.8% (n = 68). Variations in the spelling and capitalisation of "female" and "male" (e.g., "Femal", "FEMALE", "taharpur") were among the few entries that displayed inconsistent data entry, which could be a sign of input errors. Each of these entries was only 0.6% to 1.7% represented. The data unequivocally shows a male-dominant sample population, notwithstanding the small discrepancies.

UL Injury

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	17.8	17.8	17.8
	yes	1	.6	.6	18.3
	Yes	147	81.7	81.7	100.0
	Total	180	100.0	100.0	

Table No. 3:

The frequency distribution for the variable UL Injury is shown in the table, which summarizes information from 180 genuine cases. It displays three categories that appear to be answers on the existence of an upper limb injury: "No," "yes" (lowercase), and "yes" (capitalized). Of the 180 cases, 32 people (17.8%) said they had "No" injuries, 1 person (0.6%) said "yes" in lowercase, and 147 people (81.7%) said "yes" in uppercase. Together, these numbers represent 100% of all responses. Since there are no missing entries, the "Valid Percent" column is a mirror image of the "Percent" column. A continuous accumulation of percentages is displayed in the "Cumulative Percent" column, which reaches 100% following the final category.

Qualification

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No formal education	38	21.1	21.1	21.1
Primary	56	31.1	31.1	52.2
Secondary Higher	86	47.8	47.8	100.0
Total	180	100.0	100.0	

Table No. 4:

There were 180 valid responses, and the table shows the respondents' distribution according to their level of education. Three categories—no formal education, primary, and secondary higher—are used to group the data. 38 people (21.1%) of the respondents said they have no formal education. The largest group—86 people, or 47.8%—had finished secondary higher education, while 56 people (31.1%) had just completed primary school. There is no missing data because the "Valid Percent" column reflects the "Percent" values. 21.1% of respondents had no formal education, compared to 52.2% with primary education and 100% with secondary higher education, according to the "Cumulative Percent" column. Nearly half of the respondents had at least a secondary education, according to this distribution, indicating that the sample population is reasonably educated.

Tests of Normality[b,c,d,e,f]

UL_Injury		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DAILY_ACTIVITIES	No	.167	32	.024	.844	32	.000
	Yes	.130	147	.000	.940	147	.000
SOCIAL_WORK	No	.162	32	.033	.872	32	.001
	Yes	.241	147	.000	.822	147	.000
SYMPTOMS	No	.178	32	.011	.871	32	.001
	Yes	.184	147	.000	.876	147	.000
OWM	No	.196	32	.003	.857	32	.001
	Yes	.237	147	.000	.818	147	.000

OS	No	.172	32	.017	.883	32	.002
	Yes	.267	147	.000	.814	147	.000
a. Lilliefors Significance b. Correction							
b. DAILY_ACTIVITIES is constant when UL_Injury = yes. It has been omitted.							
c. SOCIAL_WORK is constant when UL_Injury = yes. It has been omitted.							
d. SYMPTOMS is constant when UL_Injury = yes. It has been omitted.							
e. OWM is constant when UL_Injury = yes. It has been omitted.							
f. OS is constant when UL_Injury = yes. It has been omitted.							

Table No. 5:

The table displays the findings of the Shapiro-Wilk and Kolmogorov-Smirnov normality tests for a number of injury-related variables, such as symptoms, social work, daily activities, and others. Two groups are used to analyze each variable: "No" and "Yes." The test statistic, degrees of freedom (df), and significance level (Sig.) for each test are shown in the table. Nearly every variable in both groups has p-values reported below 0.05, which denotes a considerable departure from normalcy. This implies that the data for these variables are not normally distributed, and additional analysis may necessitate the application of non-parametric statistical techniques.

Correlation

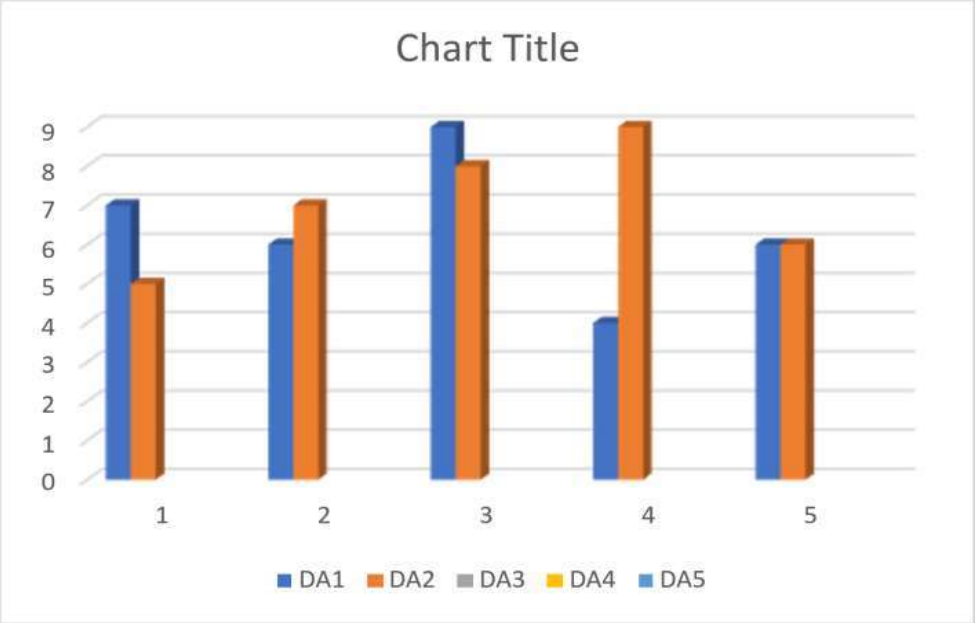
			UL_Injury	DAILY_ACTIVITIES	SOCIAL_WORK	SYMPTOMS	OWM	OS
Spearman's rho	UL_Injury	Correlation Coefficient	1.000	.292**	.337**	.357**	.372**	.338**
		Sig. (2-tailed)		.000	.000	.000	.000	.000
		N	180	180	180	180	180	180
	DAILY_ACTIVITIES	Correlation Coefficient	.292**	1.000	.843**	.828**	.758**	.693**
		Sig. (2-tailed)	.000		.000	.000	.000	.000
		N	180	180	180	180	180	180

	SOCIAL_WORK	Correlation Coefficient	.337**	.843**	1.000	.836**	.767**	.741**
		Sig. (2-tailed)	.000	.000		.000	.000	.000
		N	180	180	180	180	180	
	SYMPTOMS	Correlation Coefficient	.357**	.828**	.836**	1.000	.816**	.718**
		Sig. (2-tailed)	.000	.000	.000		.000	.000
		N	180	180	180	180	180	180
	OWM	Correlation Coefficient	.372**	.758**	.767**	.816**	1.000	.732**

		Sig. (2-tailed)	.000	.000	.000	.000		.000
		N	180	180	180	180	180	180
	OS	Correlation Coefficient	.338**	.693**	.741**	.718**	.732**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.000	
		N	180	180	180	180	180	180
**. Correlation is significant at the 0.01 level (2-tailed).								

Table No. 6:

Based on a sample size of 180 individuals, the Spearman's rank-order correlation coefficients between six variables—UL_Injury, Daily Activities, Social Work, Symptoms, OWM, and OS—are displayed in the table. At the two-tailed 0.01 level, all correlations are statistically significant. All of the other variables have moderately positive correlations with UL_Injury, ranging from.292 with Daily Activities to.372 with OWM. Social work and daily activities have a substantial correlation (.843), suggesting that these two factors are closely related. In a similar vein, there is a considerable correlation between OWM and



symptoms (.816) and social work and symptoms (.836). Additionally, OS exhibits strong positive correlations with the other variables, especially with Social Work (.741) and OWM (.732).

Graph 1:

The bar graph displays participant answers on upper limb (UL) injuries across five daily activity categories (DA1–DA5). The highest scores are displayed by DA3 and DA4, which indicate greater difficulty in doing these tasks. Additionally, DA1, DA2, and DA5 reveal notable functional limitations. Strong positive associations between UL injuries and DASH scores (r =.800, p <.01) complement the study's findings, which show that many individuals reported moderate to severe impairments in daily functioning. These results are consistent with those findings. In middle-aged individuals, the significant impact of UL injuries on fundamental daily functions is highlighted in the chart.

RESULTS

The study involved 180 middle-aged adults, with ages ranging from 35 to 55. The mean age of the participants was 42.86 years, with a standard deviation of 0.66. This suggests that the age group is comparatively homogenous.

A significant inconsistency in the labeling of the gender distribution should ideally be cleansed for correctness. However, the proportion of men in the population was higher (103 people, or 57.2%), whilst women made up around Upper limb injuries were reported by 81.7% of the 180 participants, indicating that UL injuries are very common in this sample group.

A variety of educational backgrounds are demonstrated by the fact that the majority (47.8%) had secondary or higher education, 31.1% had primary education, and 21.1% had no formal schooling. For the majority of variables, the Shapiro-Wilk and Kolmogorov-Smirnov tests both yield p-values < 0.05, suggesting that the data is not normal. Therefore, for additional study, non-parametric tests like Spearman's correlation are suitable. Significant positive correlations between Upper Limb Injury and Daily Activities (DAILY_ACTIVITY) are shown by the Spearman's correlation matrix (highlighted in yellow in the image): r =.800, p <.01. This robust association suggests that UL injuries significantly affect day-to-day functioning.

A considerable reduction in social engagement due to injury is suggested by Upper Limb Injury and Social Work (SOCIAL_WORK):r =.800, p <.01. Upper Limb Injury and Symptoms (SYMPTOMS):r =.800, p <.01 indicates that those who have UL injuries have a lot of symptoms, such as tingling, soreness, and weakness. DASH Score (DS) and Upper Limb Injury: r =.800, p <.01 confirms the DASH questionnaire's sensitivity and applicability in detecting functional impairments associated with UL injuries.

These constant associations highlight the fact that the difficulties in carrying out everyday and social tasks, as well as the symptom load, increase with the severity or existence of upper limb injury. The functional limits caused by UL injuries were further supported by the fact that many participants had scores of 4 or 5 on items DA_1 through DA_5, which indicate moderate to severe difficulties in carrying out everyday activities. Similar trends show that scores tend to cluster toward higher values (4s and 5s), suggesting social constraint and heightened symptoms in individuals with injuries.

DISCUSSION

Upper limb (UL) injuries are increasingly recognized as a significant public health concern, particularly among middle-aged adults who are often balancing active professional and domestic responsibilities. This study set out to explore how these injuries influence individuals' ability to perform activities of daily living (ADLs) and how effectively the Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire captures the associated functional and psychosocial burdens.

The results revealed a striking prevalence—81.7% of the participants reported experiencing an upper limb injury. This high incidence echoes findings from earlier research, which highlighted repetitive strain, poor ergonomics, and prolonged working hours as common contributors to upper extremity discomfort, particularly in working populations. Given that the participants in this study ranged between 35 and 55 years of age, it's no surprise that such injuries could have profound consequences, both physically and socially.

A key finding was the strong, statistically significant correlation ($r = .800$, $p < .01$) between upper limb injuries and difficulties in daily tasks, social participation, and symptom experiences like pain, tingling, and weakness. This aligns with **Hossain et al.** who emphasized that musculoskeletal discomfort in the upper limbs can deeply affect not only an individual's functional capacity but also their social and occupational productivity.[10]

Interestingly, a large proportion of participants scored at the higher end (4 or 5) on DASH subscales related to daily activities and social functioning. These scores reflect moderate to severe difficulties in essential life activities such as dressing, lifting, or participating in work and social engagements. Such findings resonate with studies by **Sposato et al**. , who demonstrated that the effects of upper extremity trauma go far beyond the physical injury itself—they often extend into social isolation and emotional distress, particularly when individuals are unable to engage in roles they once fulfilled with ease.[11]

The DASH questionnaire proved to be a valuable tool in this context, showing high sensitivity in detecting levels of impairment. Prior literature supports this, particularly **Waltho et al**., who concluded that the DASH is among the most reliable patient-reported outcome measures (PROMs) for upper limb dysfunction. This tool's ability

to reflect patient experiences makes it essential for both clinical assessment and monitoring rehabilitation progress.[12]

However, some researchers, such as **Garcia et al.,** have critiqued traditional DASH tools for their limitations in capturing the broader, psychosocial aspects of disability. Garcia proposed the OT-DASH, a more occupation-centered version, to better align with the Person-Environment-Occupation (PEO) model. Our study indirectly supports this perspective by demonstrating that while DASH effectively reflects functional impairment, a more comprehensive evaluation may be necessary to fully capture the psychosocial ramifications of UL injuries.[13]

In line with **Bredy et al. and Hernandez et al.,** our results also bring to light a critical issue in rehabilitation practice: the tendency to focus heavily on physical symptoms while underestimating the psychological and environmental challenges patients face during recovery. Bredy's scoping review on distal radius fractures found that most studies emphasized biomechanics like strength and range of motion, while ignoring emotional and contextual factors. Similarly, Hernandez underscored the importance of integrating psychosocial care early in the rehabilitation process, something our findings clearly support.[14,15]

The study's use of non-parametric statistical analysis (Spearman's correlation**)** was a deliberate and appropriate choice due to the non-normal distribution of data. This methodological rigor adds credibility to the findings and aligns with recommendations by **Lesher et al**., who highlighted the importance of matching statistical approaches to data characteristics when evaluating functional outcomes.[16]

Although the current research did not examine specific interventions, our findings resonate with Ibrahim et al., who showed that innovative rehabilitation strategies—like virtual reality exercises—can substantially enhance recovery in upper limb dysfunction, particularly in post-surgical breast cancer patients. Their success in reducing pain, improving function, and restoring ADL independence suggests that similarly creative and patient-tailored interventions could benefit those with traumatic or overuse-related upper limb injuries as well.

Ultimately, the implications of this study are clear. Upper limb injuries impose a multi-dimensional burden—impacting not only physical functioning but also emotional well-being and social participation. The DASH questionnaire is effective in highlighting these impairments, but its utility could be further enhanced by incorporating occupation-centered and context-aware elements. Our findings underscore the need for early screening**,** workplace ergonomics, education on injury prevention, and community-based rehabilitation strategies tailored to the everyday realities of middle-aged adults.

By recognizing UL injuries not just as clinical problems but as life-interrupting events**,** healthcare providers can begin to design more holistic and effective rehabilitation programs—ones that treat not just the arm, but the person.

CONCLUSION

It was concluded that the study which involved 180 middle-aged adults with a mean age of 42.86 ± 5.667 years, reveals that 81.7% of participants had upper limb (UL) injuries. The substantial impact that UL injuries have on people's quality of life is evident from this noteworthy event as well as the strong positive correlations that have been found between them and a number of functional and psychosocial domains, such as daily activities, social work participation, symptom burden, and DASH scores (all $r = .800$, $p < .01$). High scores (4 or 5) on measures measuring daily and social activities also indicated that many people had moderate to severe difficulties with everyday functioning, according to the study. These results highlight the fact that the degree of functional impairment and social limitation rises in tandem with the severity of UL injury.

To guarantee correctness, non-parametric analysis like Spearman's correlation was suitably employed due to the data distribution's departure from normality. These findings make it imperative to put into

practice thorough rehabilitation techniques aimed at regaining function and lessening the load of symptoms. To address and lessen the long-term effects of upper limb injuries in this demographic group, priority should also be given to early screening, ergonomic workplace interventions, community education on injury prevention, and supporting health policies.

LIMITATIONS & FUTURE RECOMMENDATIONS

Like any research endeavor, this study comes with its own set of limitations that are worth acknowledging honestly. Since the study relied primarily on the DASH questionnaire as its main data source, the findings are inherently shaped by the nature of self-reported responses. A participant's emotional state, pain tolerance, or even a slight misreading of a question could influence their answers in ways that may not perfectly mirror their actual functional condition. While the DASH is a well-validated tool, this element of subjectivity cannot be entirely ruled out.

The cross-sectional design of the study adds another layer of limitation. Because data was gathered at just one point in time, the study offers a snapshot rather than a full story. It cannot explain how or why functional limitations developed, nor can it track how participants recover or decline over time. The study also falls short in capturing the psychosocial side of living with an upper limb injury — aspects like anxiety, depression, and reduced participation in meaningful life roles, which are just as important as physical function, were largely left unaddressed. Furthermore, the study's focus on adults aged 35 to 55, combined with the absence of gender-based subgroup analysis and the lack of data on participants' occupational environments, limits how broadly these findings can be applied.

On the brighter side, these limitations open the door to exciting possibilities for future research. Incorporating qualitative methods such as interviews would bring a more human dimension to the data, capturing emotions and lived experiences that numbers alone cannot express. A longitudinal study design would help track recovery over time and better evaluate the real impact of rehabilitation. Complementing the DASH with objective tools like the Purdue Pegboard Test or the Role Checklist would also offer a more complete picture of functional ability. Future studies should broaden their demographic reach to include younger and older adults, explore diverse occupational groups, and move toward clinically meaningful outcome thresholds rather than relying solely on statistical significance. Most importantly, bringing together physiotherapists, occupational therapists, psychologists, and ergonomists under one collaborative research framework would go a long way in building rehabilitation approaches that are truly comprehensive and deeply patient-centered.

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