

LITTLE LEAGUE'S ELBOW IN UNDER FIFTEEN CRICKETERS

Original Research

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ABSTRACT

Background: Little League elbow is an overuse injury of the skeletally immature elbow caused by repetitive valgus stress during throwing activities. It commonly affects the medial elbow and may lead to pain, functional limitation, and reduced throwing performance if not recognized early. Although the condition has been widely described in young baseball players, evidence in adolescent cricketers remains limited. This created a need to examine its occurrence in young cricket players exposed to repetitive throwing loads.

Objective: To determine the frequency of Little League elbow among under-15 male cricketers in Lahore.

Methods: A descriptive case series was conducted over six months after synopsis approval. A total of 93 right-hand-dominant male cricketers aged 7 to 15 years were recruited through non-probability convenience sampling from Ittefaq Cricket Academy, Model Town Punjab Cricket Academy, Model Town Green Cricket Academy, and Abdul Qadir International Cricket Academy, Lahore. Players with previous elbow trauma or other significant elbow pathology were excluded. Data were collected using a self-structured observational questionnaire developed from relevant variables used in earlier studies and content-validated according to University of Health Sciences criteria. The tool demonstrated high internal consistency, with a Cronbach's alpha of 0.91. Data were analyzed in SPSS version 21 using descriptive statistics.

Results: The mean age of the participants was 13.01 ± 1.74 years, with an age range of 7-15 years. Little League elbow was indicated in 2 players (2.2%), while 91 (97.8%) showed no indication. Pain in the pitching arm on elbow extension was reported by 2 players (2.2%), and increased pain with activity was also found in 2 players (2.2%). One player (1.1%) reported a jerk during throwing, whereas none had point tenderness at the medial epicondyle. All participants were regular players and all reported throwing more than 100 pitches per week. Most players, 83 (89.2%), also threw in non-competition settings.

Conclusion: Little League elbow was identified in a small proportion of under-15 cricketers in Lahore, indicating that repetitive throwing exposure can affect medial elbow health even in young cricket players. The findings support the importance of early screening, supervised training, and preventive strategies in youth cricket.

Keywords: Adolescent; Athletic Injuries; Cricket; Elbow Joint; Male; Pain; Prevalence

INTRODUCTION

Little League elbow is an overuse injury of the immature elbow that develops when repetitive valgus stress is transmitted across the medial side of the joint, producing pain, tenderness, and at times swelling in skeletally immature athletes (1). Although the term is traditionally linked with youth baseball, the underlying mechanism is not limited to one sport. Any repetitive overhead or throwing-style activity performed before physal closure can expose the developing elbow to abnormal torque, making this condition relevant in other young athletic populations, including cricketers. Chronic sports injuries account for a substantial proportion of musculoskeletal problems in children and adolescents, and many of these injuries involve vulnerable growth cartilage at the epiphysis or apophysis, where repetitive loading can disturb normal development and function (2). This makes medial elbow pain in young athletes more than a minor complaint; it represents a clinically important issue with implications for participation, performance, and long-term joint health. The clinical significance of Little League elbow has been well established in youth throwing sports, where medial epicondylar irritation, apophysitis, and osteochondral changes may occur in a considerable proportion of school-aged players (3). Repetitive throwing produces a complex sequence of biomechanical events in which pelvic and trunk rotation are followed by rapid shoulder external rotation and force transmission through the elbow. Near maximal external rotation, substantial shoulder internal rotation torque and elbow varus torque are generated to control the limb and stabilize the joint. In this phase, the ulnar collateral ligament absorbs a major share of the valgus stress, while the lateral compartment simultaneously experiences compressive forces. In skeletally immature athletes, these repeated loads may not only injure soft tissues but may also provoke bony avulsion at the growth plate, medial apophysitis, osteochondral injury of the capitellum, and other developmental lesions of the elbow (4). Thus, the immature elbow is uniquely susceptible to injury because its cartilaginous and osseous structures are less resistant to repetitive mechanical overload than those of adults.

Several factors have been proposed to explain why these injuries occur so frequently in young athletes. Overuse remains one of the most consistently cited contributors, particularly when sports participation becomes year-round and recovery time is inadequate. Poor technique, excessive training volume, and the premature use of high-stress movement patterns may further increase medial elbow loading and amplify cumulative microtrauma (5). In cricket, this concern is especially relevant because repetitive bowling and throwing, particularly in young players with developing musculoskeletal systems, can create similar stress patterns across the elbow. Previous work has also highlighted the contribution of improper warm-up, unsuitable footwear, inadequate protective equipment, and poorly structured seasonal training loads to upper-limb injury risk in young cricketers, with repetitive workload potentially contributing to apophyseal injury and related soft-tissue stress (6). These observations suggest that Little League elbow should not be viewed solely as a baseball-associated disorder, but rather as a broader overuse pathology of youth sport that deserves attention wherever repetitive upper-limb loading is present. The medial elbow in the young throwing athlete is particularly vulnerable because valgus overload acts repeatedly on an immature cartilage zone that has not yet achieved full structural resilience. This may result in pain severe enough to restrict or prevent effective sporting participation, either through gradual symptom progression or through an acute exacerbation during throwing or bowling activities (7). Importantly, medial elbow injuries in children and adolescents are not uniform. They range from apophysitis and flexor-pronator strain to medial collateral ligament stress and, in more mature athletes, epicondylar avulsion injuries. With continued repetitive overload, secondary lateral and posterior pathologies may also emerge, including osteochondritis dissecans, radial head changes, olecranon apophysitis, posteromedial impingement, and contracture patterns that reflect the cumulative effect of abnormal joint mechanics (8). This spectrum underscores the need for early recognition and sport-specific evaluation before a seemingly minor complaint progresses into a more disabling condition.

Another important consideration is the frequent conceptual overlap between Little League elbow and golfer's elbow. Although both conditions may present with medial elbow pain, they are not identical entities. Golfer's elbow is primarily a medial epicondylitis, whereas Little League elbow in the immature athlete represents a broader injury complex that may involve the medial epicondyle, common flexor origin, and medial ligamentous structures under repetitive valgus stress (9). Failure to distinguish between these conditions may lead to underrecognition of physal or apophyseal involvement in younger players and may delay appropriate management. This distinction is especially important in sports medicine settings where medial elbow pain in adolescents may be simplified as a tendon-related problem despite a different pathoanatomical basis (10). Despite the growing literature on youth throwing injuries, an important gap remains. Much of the current evidence is derived from baseball populations, while comparatively little attention has been directed toward under-fifteen cricketers, even though they are also exposed to repetitive upper-limb loading, technical demands, and fluctuating workloads during a critical stage of skeletal development. The available evidence suggests that overuse mechanisms, valgus stress, and training-related factors may plausibly place young cricketers at similar risk, yet the problem remains underexplored in this population. This creates an important clinical and research need to determine whether Little League elbow is present in under-fifteen cricketers, how it manifests, and which sport-related factors may be associated with its occurrence. Therefore, the present study is designed to examine Little League elbow in under-fifteen cricketers, with the objective of identifying its occurrence

and clarifying the role of relevant risk factors in this age group, so that early recognition, preventive strategies, and safer participation in youth cricket can be better informed.

METHODS

This study was conducted using a descriptive case series design to determine the frequency of Little League elbow among under-15 cricketers. The study was completed over a period of six months following approval of the research synopsis. Data were collected from four cricket training centers in Lahore, namely Ittefaq Cricket Academy, Model Town Punjab Cricket Academy, Model Town Green Cricket Academy, and Abdul Qadir International Cricket Academy. A non-probability convenience sampling technique was employed for participant recruitment. The target population comprised under-15 male cricketers with right-hand dominance who were actively participating in cricket training or play during the data collection period. Players with a previous history of elbow injury, trauma, fracture, surgery, congenital deformity, or any known musculoskeletal or neurological condition involving the elbow region were excluded in order to reduce confounding and ensure that the findings reflected sports-related overuse symptoms as accurately as possible (11). A total of 93 cricketers were intended to be enrolled in the study. Participants were approached at their respective academies, screened for eligibility, and included after confirmation that they met the predefined selection criteria. Data were gathered using a self-structured diagnostic observational questionnaire developed to assess features relevant to Little League elbow in young cricketers. The questionnaire was designed on the basis of clinical observation and variables reported in previous related studies, and it was reviewed for content validity according to the University of Health Sciences criteria for questionnaire validation. The instrument was reported to have high internal consistency, with a Cronbach's alpha value of 0.91, indicating strong reliability. The questionnaire was used to obtain information related to demographic profile, playing characteristics, and symptoms associated with medial elbow stress, including pain in the elbow region and related clinical complaints. Before administration, the purpose and nature of the study were explained to all participants and their guardians in clear and understandable language (12).

Data collection was carried out in the field setting at the selected academies. After obtaining consent, each participant completed the assessment process under the supervision of the researcher. The study aimed to identify players presenting with findings suggestive of Little League elbow through a structured observational and symptom-based assessment approach. Every effort was made to maintain uniformity in the data collection procedure across all sites. The collected information was recorded systematically and prepared for statistical analysis. Because the study was descriptive in nature, the emphasis remained on documenting the frequency and distribution of findings rather than establishing causal associations (13). All data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics were applied in accordance with the objectives of the study. Quantitative variables, such as age, were summarized as mean and standard deviation, whereas qualitative variables, including the presence of elbow pain and other categorical responses, were presented as frequencies and percentages. The findings were displayed in the form of tables and graphical presentations where appropriate to improve clarity and interpretation. Since the primary purpose of the study was to estimate frequency, the analysis remained descriptive rather than inferential.

Ethical approval to conduct the study was obtained from the Ethical Review Committee of Lahore College of Physical Therapy, LMDC. However, the approval reference number was not reported in the provided methodology. Informed consent was obtained prior to participation, and where applicable, consent and assent procedures were expected to be observed because the participants were minors. Confidentiality of participant information was maintained throughout the study, and data were used solely for research purposes. Cultural and religious values were respected during the entire process of participant approach, assessment, and data handling. The study was conducted in accordance with accepted ethical principles for human research involving adolescent participants.

RESULTS

A total of 93 under-15 cricketers were included in the analysis. The mean age of the participants was 13.01 ± 1.74 years, with an age range of 7 to 15 years. Based on the overall assessment, Little League elbow was indicated in 2 players (2.2%), whereas 91 players (97.8%) did not show findings suggestive of Little League elbow. Regarding the responses recorded through the assessment tool, 2 participants (2.2%) reported taking medication, while 91 (97.8%) were not taking any medication. All 93 players (100%) were regular players. No participant showed a difference in the angle of the elbow in full extension between both arms, as all 93 players (100%) had symmetrical elbow extension. A jerk during ball throwing was reported by 1 player (1.1%), whereas 92 players (98.9%) did not report this complaint. Most players, 78 (83.9%), reported being more often satisfied than dissatisfied with their performance, while 15 (16.1%) were not satisfied.

Pain in the elbow of the pitching arm during extension was present in 2 players (2.2%), while 91 players (97.8%) did not report pain on extension. Throwing or playing catch in non-competition settings was reported by 83 players (89.2%), whereas 10 players (10.8%) did not engage in such activity. None of the participants reported regular participation in resistance training, with 93 players (100%)

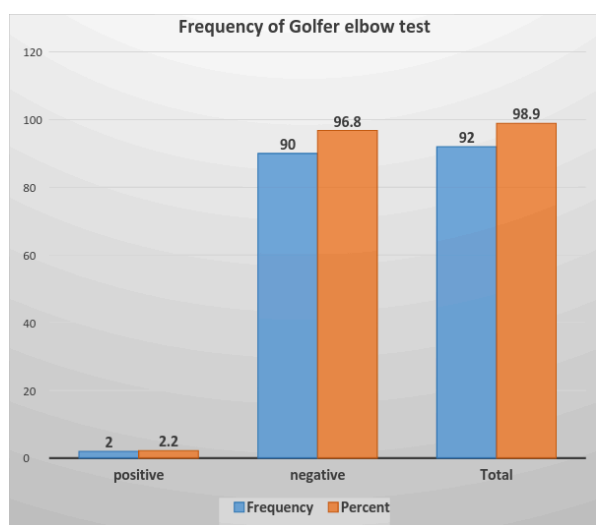
responding negatively to this item. Similarly, all participants, 93 (100%), reported throwing more than 100 pitches per week. Point tenderness at the medial epicondyle was not observed in any participant, and all 93 players (100%) were negative for this finding. In addition, 2 players (2.2%) demonstrated increased intensity of pain with increased activity, whereas 91 players (97.8%) did not report this pattern. A previous musculoskeletal injury, particularly around the elbow joint, was present in 1 player (1.1%), while 92 players (98.9%) had no such history. Overall, the frequency of clinically suggestive Little League elbow remained low in the studied sample, with only 2 out of 93 players meeting the indicated criteria.

Table 1: Age of the study population:

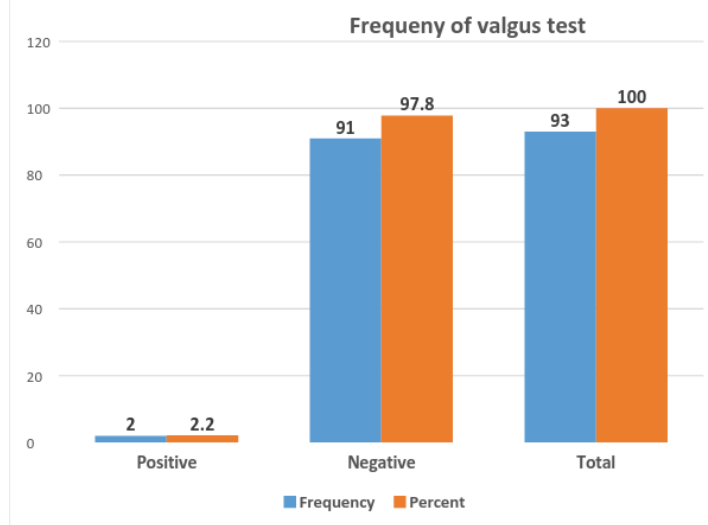
Number	Mean	Std. Deviation	Minimum	Maximum
93	13.0108	1.73515	7.00	15.00

Table 2: Frequency of questions used in tool

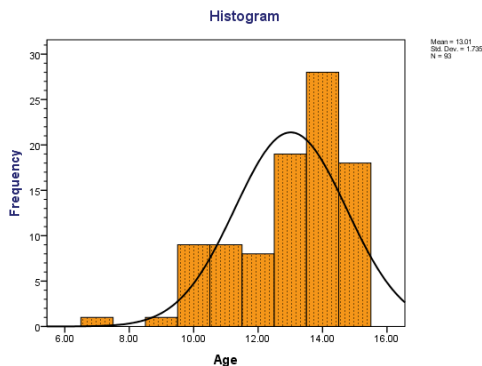
Question's	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Are you taking any medication?	2	2.2	91	97.8
Are you a regular player?	93	100	0	0.00
Is the angle of the elbow in full extension different between both arms?	0	0.00	93	100
Do you feel any jerk during throwing a ball?	1	1.1	92	98.9
Are you more often satisfied than dissatisfied with your performance?	78	83.9	15	16.1
Do you have pain in the elbow of the pitching arm when it is extended?	2	2.2	91	97.8
Do you often play catch or throw a ball in noncompetition settings?	83	89.2	10	10.8
Do you often participate in resistance training?	0	0.00	93	100
Do you often throw more than 100 pitches per week?	93	100	0	0.00
Point tenderness at medial epicondyle?	0	0.00	93	100



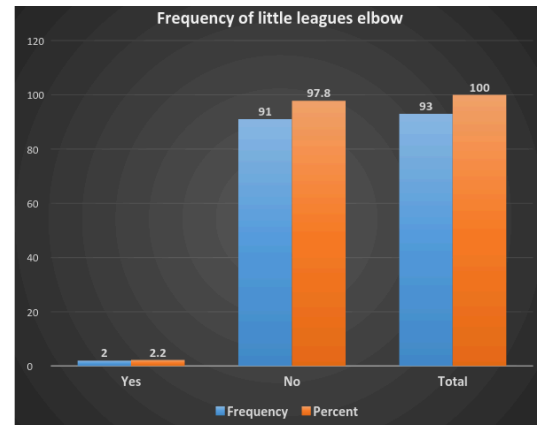
Frequency of golfer elbow test



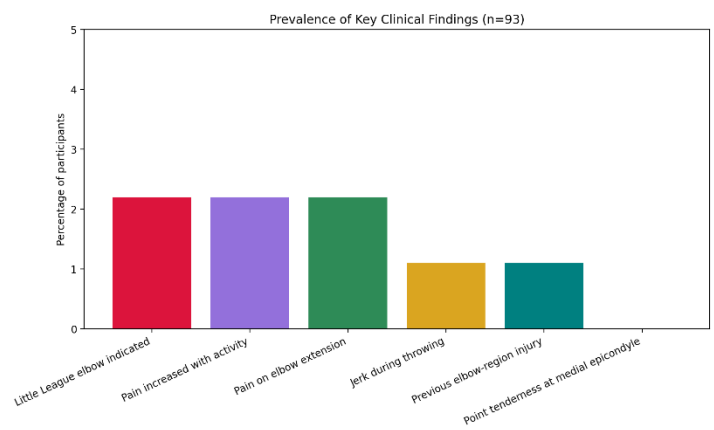
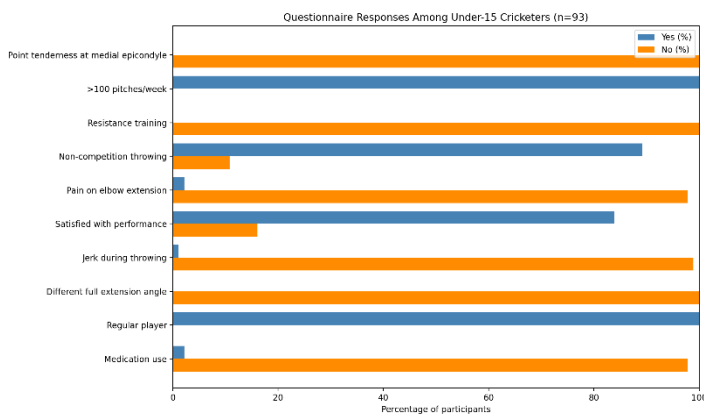
Frequency of valgus elbow test



Histogram of Age



Based on special tests little league's elbow is indicated



DISCUSSION

The present study identified a low frequency of Little League elbow among under-15 male cricketers, with only 2.2% of the participants showing findings suggestive of the condition, while 97.8% did not demonstrate such features. This finding suggested that although Little League elbow was present in this athletic population, it was not common in the sampled group. The result remained clinically relevant because even a small proportion of overuse-related elbow injury in skeletally immature players carried importance for performance, continued sports participation, and long-term joint health. Medial elbow structures are known to be exposed to tensile stress during repetitive overhead throwing, and this mechanism has been described as a central contributor to overuse syndromes such as medial epicondylar apophysitis, medial epicondyle avulsion injury, ulnar collateral ligament sprain, and flexor-pronator strain in young athletes (14,15). The low frequency observed in this study appeared lower than the burden reported in literature on youth throwing athletes, particularly in baseball populations, where overuse injuries of the elbow have been described more frequently. This variation may have reflected differences in sport-specific biomechanics, intensity of exposure, level of competition, training structure, and diagnostic approach. Cricket and baseball both involve repetitive throwing actions, but the pattern, volume, and mechanics of upper-limb loading are not identical. In addition, the current study assessed cricketers from organized academies, and this may have contributed to the lower observed frequency if players were receiving better technical supervision, monitoring, and recovery practices. Such an explanation remained plausible because coaching quality, training regulation, and awareness of overuse symptoms can influence the development and early prevention of stress-related elbow pathology (16,17).

The findings also aligned with the broader understanding that not every young athlete exposed to repetitive throwing develops clinically evident injury. Chronic sports injuries have been estimated to account for a substantial proportion of athletic morbidity, and nearly half of these injuries involve the vulnerable growth cartilage of the epiphysis or apophysis in growing individuals. Within this context, the present results suggested that under-15 cricketers remained a population at risk, but the extent of clinically detectable involvement in this sample was limited. The presence of elbow pain on extension in 2.2% of participants supported the possibility that repetitive throwing activity may have contributed to early medial elbow symptoms in a small subgroup. However, the absence of point tenderness at the medial epicondyle in all players indicated that overt clinical signs of advanced medial apophyseal irritation were not common in the studied cohort (18,19). These findings carried practical implications for sports medicine, physiotherapy, and youth cricket training

programs. Even though the detected frequency was low, the study reinforced the importance of routine screening for early elbow symptoms in adolescent cricketers, particularly those exposed to repetitive throwing loads. Little League elbow is fundamentally an overuse condition, and its early stages may present with subtle pain, reduced throwing efficiency, or discomfort during extension before more obvious structural involvement becomes apparent. Recognition of these early indicators can support timely activity modification, correction of faulty mechanics, and preventive rehabilitation strategies. The results therefore supported the value of surveillance in academy-based cricket settings, especially among young players who may continue training despite mild symptoms (20-22).

The study had several strengths. It addressed an underexplored topic in cricket, a sport in which Little League elbow has received much less attention than in baseball. It also focused specifically on under-15 players, a group in whom skeletal immaturity makes overuse injury especially important. Data were collected from multiple cricket academies, which improved the diversity of the sample within the local setting. In addition, the use of a structured and reportedly reliable questionnaire provided a standardized approach to data collection and allowed the study to estimate frequency in a practical field-based manner (12). At the same time, the study had important limitations that should be considered when interpreting the findings. The sample size was relatively small, which limited the precision of frequency estimation and reduced the generalizability of the results. The use of non-probability convenience sampling may also have introduced selection bias, as the included players may not have represented all under-15 cricketers in Lahore or in other playing environments. The study was conducted within a local setting and over a limited data collection period, which further restricted external validity. Another limitation was the reliance on an observational questionnaire-based assessment rather than a more comprehensive clinical examination supported by imaging or specialist diagnosis. As a result, subclinical or early structural abnormalities may have been missed. In addition, the descriptive nature of the study did not allow assessment of causal relationships or robust evaluation of specific risk factors such as workload, bowling frequency, throwing mechanics, duration of play, or seasonal variation (19,9).

The discussion of these findings also required caution because the low observed frequency should not be interpreted as evidence that the condition is negligible in youth cricket. A low measured frequency in one sample may reflect true low occurrence, but it may also reflect limited symptom reporting, early-stage disease without prominent examination findings, or methodological constraints in case identification. For this reason, the findings were better understood as an initial estimate rather than a definitive statement on the burden of Little League elbow in all young cricketers. The contrast between literature describing substantial elbow overuse problems in youth throwers and the comparatively low frequency in this study highlighted the need for sport-specific evidence rather than direct extrapolation from baseball-based research (12,21). Future research would benefit from larger multicenter samples, probability-based recruitment methods, and broader inclusion of playing levels and geographic settings. Studies involving longer observation periods, detailed workload monitoring, and objective clinical assessment would provide a clearer understanding of the true burden of Little League elbow in cricket. Analytic designs could also examine associations between elbow symptoms and factors such as playing position, bowling volume, years of participation, coaching quality, warm-up practices, and strength training habits. Such work would strengthen the evidence base for preventive guidelines tailored to young cricketers.

Overall, the study demonstrated that Little League elbow was present but infrequent in the sampled under-15 cricketers. Despite the low frequency, the condition remained clinically meaningful because repetitive throwing stress in skeletally immature athletes can affect elbow function, reduce throwing performance, and predispose to progressive overuse injury. These findings supported continued attention to early identification, supervised training, and preventive management in youth cricket settings.

CONCLUSION

This study concluded that Little League elbow was present among under-15 male cricketers in Lahore, indicating that repetitive throwing and overuse can place young players at risk of medial elbow injury even at an early stage of athletic development. Although the condition did not appear to be widespread in the studied sample, its presence highlights the importance of timely recognition, proper supervision, safe training practices, and early preventive strategies in youth cricket. The findings add useful sport-specific evidence to a relatively underexplored area and emphasize the need for greater attention to elbow health in developing cricketers to support performance, reduce avoidable injury, and promote safer long-term participation in the game.

AUTHOR CONTRIBUTION

Author	Contribution
Suffain Khalid	Conceptualization, Methodology, Formal Analysis, Writing - Original Draft, Validation, Supervision
Ali Shahzad	Methodology, Investigation, Data Curation, Writing - Review & Editing
Ifrah Suhail	Investigation, Data Curation, Formal Analysis, Software
Abida Wahab	Software, Validation, Writing - Original Draft

Mir Shakeel Ahmad	Formal Analysis, Writing - Review & Editing
Asma Aleem	Writing - Review & Editing, Assistance with Data Curation

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