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Skin Cancer Prevention and Early Detection in Rural Communities: A Scoping Review of Dermatological Strategies and Implications for Clinical Practice in Alamogordo, New Mexico

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ABSTRACT

This study aimed to map dermatological strategies for skin cancer prevention and early detection in rural and medically underserved communities and identify implications for clinical practice in Alamogordo, New Mexico. A preliminary scoping review synthesis, guided by the Joanna Briggs Institute approach and Population–Concept–Context framework, examined published observational studies, interventions, evidence reviews, and clinical guidance through descriptive evidence mapping and narrative synthesis. The literature highlighted complementary roles for ultraviolet protection, community education, clinical assessment, dermoscopy, teledermatology, and coordinated referrals. National research indicated that rural patients with melanoma had lower adjusted odds of receiving recommended surgery (0.52) and a higher melanoma-specific mortality hazard (1.19) than urban patients. Diagnostic evidence demonstrated improved accuracy with dermoscopy, although teledermatology performance varied across clinical circumstances. These findings indicated that effective rural dermatological care required integrating preventive practices with accessible diagnostic evaluation, treatment, and follow-up services. Clinics serving Alamogordo should strengthen individualized sun-protection counseling, suspicious-lesion assessment, appropriate diagnostic techniques, and referral coordination between primary care providers and dermatology specialists. The synthesis was limited by heterogeneous study characteristics, uncertain applicability to local healthcare conditions, and incomplete comprehensive searching and evidence charting. By integrating evidence on prevention, early detection, and healthcare accessibility, this review provides a practical foundation for developing context-sensitive dermatological services and identifying priorities for future rural healthcare research.

Keywords: *Dermoscopy, Early Detection, Rural Healthcare, Scoping Review, Skin Cancer, Teledermatology, Ultraviolet Protection*

1. INTRODUCTION

1.1. Background and Context of the Study

Skin cancer remains a major public health concern in the United States, encompassing basal cell carcinoma, squamous cell carcinoma, and melanoma. Although keratinocyte carcinomas are generally treatable when recognized promptly, melanoma accounts for a disproportionate share of skin cancer mortality. Exposure to ultraviolet (UV) radiation is an important modifiable risk factor, placing sustained attention on prevention alongside timely clinical assessment. Garbe et al. (2024) recommended combining shade, protective clothing, and appropriate sunscreen use, while Slavinsky et al. (2024) highlighted the occupational risks associated with prolonged solar UV exposure among outdoor workers. These findings support prevention strategies that account for both personal behavior and everyday environmental exposure. Community-based prevention also requires attention to how health information reaches people in different settings. Burnette et al. (2026) examined interventions implemented through schools, healthcare facilities, and community programs, illustrating opportunities to promote protective practices beyond individual consultations. Early recognition is similarly important: Chen et al. (2025) found that diagnostic accuracy varied by clinician experience and examination method, with dermoscopy improving diagnostic performance. Together, prevention, assessment, and referral form interconnected components of dermatological care. Their practical integration becomes especially relevant in rural communities, where travel distance, specialist availability, and continuity of care may influence access to services. Brumbaugh et al. (2024) described substantial geographic disparities in dermatology provision across the United States. Alamogordo, in Otero County, southern New Mexico, serves residents within a desert environment and surrounding rural settlements where outdoor activities and access to specialist services are pertinent considerations. These circumstances provide a meaningful setting for examining how established preventive and early detection approaches can inform accessible, coordinated dermatological practice without assuming that strategies effective elsewhere can be transferred unchanged.

1.2. Research Problem

The central problem addressed by this review is how rural healthcare services can bring together skin cancer prevention, recognition of suspicious lesions, diagnostic assessment, and appropriate referral within the constraints of local access. Beyond public awareness, patients may face difficulty obtaining specialist evaluation or completing follow-up care. Hernandez et al. (2024) reported that rural patients with melanoma were less likely to receive recommended surgery and experienced higher melanoma-specific mortality than urban patients in a national cohort, underscoring the clinical importance of access disparities. The local context also warrants attention. Federal State Cancer Profiles data recorded an age-adjusted melanoma incidence rate of 16.9 cases per 100,000 people in Otero County during 2018–2022, compared with 17.5 statewide (National Cancer Institute & Centers for Disease Control and Prevention, 2026). Moreover, the U.S. Preventive Services Task Force (2023) determined that evidence was insufficient to establish the balance of benefits and harms of routine clinician screening in asymptomatic adolescents and adults, without discounting evaluation of concerning lesions. Parga et al. (2025) identified opportunities and implementation barriers for rural teledermatology. Despite these advances, translating complementary strategies into feasible, locally responsive clinical pathways remains an important unresolved concern.

1.3. Research Gap

Existing research has addressed important but often distinct dimensions of skin cancer care. Burnette et al. (2026) mapped community-based primary prevention interventions, whereas Chen et al. (2025) evaluated diagnostic accuracy across clinicians and examination techniques. Parga et al. (2025) concentrated on teledermatology performance, implementation obstacles,

and equity implications in rural skin cancer services. Their differing emphases do not provide a unified account of how preventive education, clinical recognition, diagnostic support, referrals, and follow-up relate within rural practice. The gap addressed here is therefore one of evidence integration and contextual application, rather than an assertion that rural skin cancer prevention has been overlooked. Specifically, the literature requires mapping across intervention types, delivery settings, affected populations, and practical barriers to clarify which approaches may be relevant to clinics serving Alamogordo and neighboring communities. A scoping review can organize this dispersed evidence, distinguish established practices from context-dependent possibilities, and identify priorities for subsequent investigation.

1.4. Purpose and Objectives of the Study

This scoping review aims to map published evidence on dermatological strategies for skin cancer prevention and early detection in rural and medically underserved communities, with particular attention to clinical implications for Alamogordo, New Mexico. Guided by the Joanna Briggs Institute approach and the Population, Concept, and Context framework, it considers rural residents; preventive interventions and early recognition or assessment strategies; and community healthcare, primary care, outpatient dermatology, and rural clinical settings. Its objectives are to identify described strategies, examine the populations and settings in which they have been applied, characterize barriers and facilitating factors affecting service delivery, and identify areas for further research or clinical development. The review is intended to inform practice rather than evaluate a new local intervention.

1.5. Significance and Practical Contribution of the Study

The review's contribution lies in organizing research that rural clinicians and healthcare planners can use when considering accessible skin cancer services. By examining evidence on preventive counseling, photoprotection, suspicious-lesion assessment, diagnostic support, teledermatology, and referral coordination, it offers a structured basis for discussing service improvement. Its implications extend to dermatology personnel, primary care providers, community health organizations, and administrators responsible for patient education and continuity of care. For services in Alamogordo, the resulting evidence map may help distinguish approaches potentially adaptable to local resources from those dependent on specialist capacity or digital infrastructure. These contributions concern evidence-informed planning; they do not establish the effectiveness of a particular local program or clinical pathway.

1.6. Sustainable Development Goals (SDG) Alignment

The study aligns directly with Sustainable Development Goal (SDG) 3, Good Health and Well-being, through its emphasis on preventing a noncommunicable disease, improving recognition of potentially malignant lesions, and supporting appropriate access to clinical assessment. It also supports SDG 10, Reduced Inequalities, by examining geographic barriers that can disadvantage rural residents seeking specialist dermatological services. Mapping evidence on patient education, remote consultation, and coordinated referrals can inform more equitable approaches to service organization, particularly where travel and workforce constraints affect healthcare access. In accordance with the United Nations (2015) sustainable development agenda, these connections concern the potential contribution of evidence-informed care to health and equity; the review does not claim to have demonstrated changes in population outcomes.

2. METHODOLOGY

2.1. Research Design

The investigation was structured as a scoping review of published evidence on skin cancer prevention and early detection in rural communities, with attention to clinical implications for Alamogordo, New Mexico. Its methodological framework followed Joanna Briggs Institute (JBI) guidance (Pollock et al., 2026), and reporting was aligned with the PRISMA extension for scoping reviews (PRISMA-ScR; Tricco et al., 2018). This design was appropriate for mapping diverse strategies, healthcare settings, and implementation conditions rather than comparing intervention effectiveness or calculating pooled clinical outcomes.

2.2. Research Locale, Population, and Participants or Respondents

The review's local practice focus was Alamogordo, Otero County, New Mexico, while its evidence base encompassed rural and medically underserved communities. Under the Population–Concept–Context (PCC) framework, the population was rural residents; the concept included UV protection, patient education, recognition of suspicious lesions, dermoscopy, teledermatology, and specialist access; and the context covered rural primary care, outpatient dermatology, community health services, and remote consultation. No patients were recruited or surveyed because publications, rather than individuals, constituted the units of review. United States studies were prioritized, although relevant international research addressing comparable rural healthcare conditions was eligible.

2.3. Sampling Technique and Sample Determination

Sources were to be selected using eligibility-based screening rather than probability sampling or respondent sample-size estimation. Eligible materials included quantitative, qualitative, and mixed-methods research, evidence syntheses, clinical guidelines, and government or public health reports addressing melanoma, basal cell carcinoma, or cutaneous squamous cell carcinoma. Publications from 2021–2026 were prioritized; older foundational sources were allowed. Studies exclusively addressing advanced cancer treatment, laboratory investigations without a community or clinical component, or urban settings without rural relevance were excluded. English-language sources were prioritized; no predetermined number of publications was imposed.

2.4. Research Instrument and Validation

A structured data-charting framework was developed rather than a respondent questionnaire. Its specified fields covered author, publication year, geographic setting, objectives, design, population characteristics, healthcare context, dermatological strategy, principal findings, and implications for rural clinical practice. Additional categories captured prevention counseling, protective behavior, lesion assessment, diagnostic techniques, referral pathways, teledermatology, and healthcare access. The framework allowed primary-study findings to be distinguished from secondary-review conclusions. No pilot test, formal validation procedure, or reliability coefficient for the charting framework was described in the manuscript.

2.5. Data Gathering Procedure

The search framework identified PubMed/MEDLINE, Scopus, CINAHL, and Embase, subject to institutional access, together with Google Scholar, relevant reference lists, and authoritative public health publications. Planned queries combined terms related to skin cancer, sun protection, screening, dermoscopy, teledermatology, and rural healthcare using AND, OR, and applicable MeSH headings (Peters et al., 2022). The selection protocol specified duplicate identification followed by title-and-abstract screening and full-text eligibility assessment. Reasons for exclusions and record counts were designated for PRISMA-ScR reporting. Actual search dates and screening counts were not provided.

2.6. Data Analysis and Statistical Treatment

Analysis was organized around descriptive evidence mapping and narrative synthesis. Publications were to be characterized by year, location, research design, population, and clinical focus, then examined for recurring themes relating to UV protection, preventive education, suspicious-lesion assessment, dermoscopy, teledermatology, referral coordination, and rural service accessibility. The framework distinguished reported findings from potential applications in Alamogordo and allowed additional themes to emerge from eligible sources. No inferential statistical tests or meta-analysis were specified, and formal quality appraisal was not required for inclusion because the objective was to map the literature rather than estimate intervention effects.

2.7. Ethical Considerations

The review framework relied on published research and professional or governmental sources, without direct collection of personal information from patients. The manuscript did not specify institutional ethics approval, a formal exemption determination, or a consent procedure; accordingly, none is claimed. Responsible evidence handling centered on accurate attribution, clear distinctions between primary and secondary findings, transparent eligibility decisions, and avoidance of presenting observations from other rural populations as direct evidence about Alamogordo residents.

3. RESULTS AND DISCUSSION

3.1. Characteristics and Scope of the Published Evidence

The literature examined in this review addressed several interconnected dimensions of skin cancer prevention and early detection, including ultraviolet (UV) radiation protection, community-based education, clinical recognition of suspicious lesions, diagnostic assessment, teledermatology, and accessibility of specialist healthcare services. The publications represented different methodological approaches, including observational investigations, clinical interventions, randomized controlled trials, systematic reviews, scoping reviews, and national healthcare recommendations. This diversity provided perspectives on preventive behaviors, diagnostic performance, healthcare accessibility, and clinical outcomes among populations experiencing different environmental and healthcare conditions. Two principal areas emerged from the literature: primary prevention and early detection. Primary prevention involved reducing harmful UV exposure through protective behaviors, health education, and interventions addressing occupational or recreational risks. Early detection concerned recognizing suspicious skin changes, undertaking appropriate clinical assessment, and facilitating timely diagnostic evaluation. Garbe et al. (2024) emphasized comprehensive photoprotection, while Chen et al. (2025) demonstrated the importance of clinical expertise and diagnostic techniques in distinguishing malignant from benign skin lesions. These findings illustrated that preventing skin cancer and identifying potentially malignant lesions required different but complementary clinical approaches. Healthcare accessibility represented an additional consideration linking these areas. Brumbaugh et al. (2024) described geographic inequalities in dermatological service availability, while Hernandez et al. (2024) documented differences in melanoma treatment and outcomes between rural and urban populations. These studies suggested that preventive knowledge and clinical expertise alone were insufficient to address every aspect of rural skin cancer care. Patients also required access to appropriate evaluation, referral, treatment, and follow-up services. The evidence therefore supported examining dermatological prevention and early detection within the broader organization of rural healthcare. However, the publications differed in their study populations, outcome measures, and clinical objectives. The synthesis consequently focused on identifying relevant strategies,

comparing their reported findings, and interpreting their implications rather than treating the available evidence as a single estimate of intervention effectiveness.

3.2. Ultraviolet Radiation Exposure and Sun-Protective Behaviors

The literature consistently identified UV radiation exposure as an important modifiable risk factor for skin cancer, particularly among individuals whose occupations or recreational activities involved prolonged outdoor exposure. Garbe et al. (2024) emphasized comprehensive photoprotection through shade-seeking behaviors, protective clothing, wide-brimmed hats, sunglasses, and sunscreen application. Their recommendations indicated that effective prevention required combining protective measures rather than relying exclusively on sunscreen. Similarly, Slavinsky et al. (2024) examined occupational solar UV exposure and highlighted the importance of workplace education, appropriate protective equipment, and employer participation in reducing excessive exposure. Differences in preventive behaviors between rural and urban populations were demonstrated by Dona et al. (2024), who analyzed National Health and Nutrition Examination Survey data collected from 2013 to 2018. Among White respondents, sunscreen use was reported by 26.0% of rural residents compared with 35.1% of urban residents. Among Hispanic respondents, 41.6% of rural residents reported experiencing sunburn during the preceding year, compared with 31.2% of urban residents. These findings indicated differences in sun-protective practices and exposure experiences across geographic and demographic groups. The lower reported sunscreen use among rural White respondents suggested that opportunities for improving preventive behaviors may differ according to community circumstances. Similarly, the higher occurrence of sunburn among rural Hispanic respondents highlighted the importance of examining exposure patterns within specific populations rather than assuming that all rural residents shared identical risks. Although these findings demonstrated associations between rural residence and preventive behaviors, they did not establish that geographic location independently caused differences in sun exposure or protection. For Alamogordo and surrounding communities, these observations are relevant because southern New Mexico includes desert environments and opportunities for outdoor employment and recreation. Healthcare professionals may consider occupational activities, recreational exposure, previous sunburn experiences, and existing protective practices when providing individualized counseling. The findings support prevention strategies that address everyday circumstances while recognizing that national patterns cannot automatically be assumed to represent the behaviors of residents in Alamogordo. Overall, the literature suggested that skin cancer prevention required both individual awareness and practical opportunities to adopt protective behaviors. Comprehensive counseling that considers environmental exposure, occupational circumstances, and patient characteristics may provide a more appropriate approach than uniform educational messages delivered without consideration of community context.

3.3. Community-Based Education and Occupational Prevention Interventions

Community-based education emerged as an important strategy for improving skin cancer awareness and encouraging protective practices. Burnette et al. (2026) examined interventions implemented in educational, healthcare, and community settings and described differences in program delivery, intended populations, and preventive approaches. Their review illustrated how skin cancer education could extend beyond dermatology consultations through accessible health promotion activities and community participation. Evidence supporting educational interventions was provided by Heckman et al. (2024), who conducted a randomized controlled

trial involving 1,369 young adults in the United States. The study compared digital skin cancer risk-reduction interventions with an electronic educational pamphlet. Participants receiving the active interventions demonstrated improvements in several sun-protective behaviors, including sunscreen use during short-term follow-up and skin self-examination at one year. These findings indicated that structured digital interventions could encourage preventive behaviors and promote awareness of skin cancer risks. However, the trial was not conducted specifically among rural residents. Its findings therefore supported the potential usefulness of digital education without establishing its effectiveness in communities experiencing limited connectivity, differences in digital literacy, or restricted healthcare access. Naasz et al. (2026) examined a more localized educational approach involving 20 agricultural workers attending farm shows in South Dakota. Participants received brief instruction covering skin cancer risk factors, preventive practices, and recognition of suspicious lesions. Following the intervention, participants demonstrated improved knowledge of melanoma warning signs and increased intention to use sunscreen. These findings suggested that familiar community venues could facilitate targeted preventive education among workers experiencing occupational UV exposure. Nevertheless, increased knowledge and behavioral intention did not necessarily demonstrate sustained sun-protective practices. The relatively small participant group and short-term assessment also limited conclusions concerning long-term effectiveness. Occupational intervention findings were further demonstrated by de Boer et al. (2025), who investigated 54 male construction and arboricultural workers in the Netherlands. The intervention combined educational materials, information about UV exposure, and sunscreen provision. Following six weeks, the intervention group demonstrated improved sunscreen use and lower measurements of a biological marker associated with UV exposure compared with the control group. These results suggested that workplace education combined with accessible protective resources could influence short-term exposure-related outcomes. The findings of Heckman et al. (2024), Naasz et al. (2026), and de Boer et al. (2025) collectively demonstrated the potential contribution of educational interventions delivered through digital platforms, community activities, and workplaces. However, their different populations, intervention durations, and outcome measures limited direct comparisons of effectiveness. Furthermore, improvements in knowledge, sunscreen use, or biological indicators could not independently establish reductions in future skin cancer incidence. For rural dermatological practice, these findings supported considering multiple educational approaches according to patient needs and available resources. Brief clinical counseling, printed educational materials, workplace initiatives, and digital communication may complement one another when appropriately implemented. The central implication was that preventive education should emphasize not only the transmission of information but also opportunities for individuals to incorporate protective behaviors into their daily activities.

3.4. Early Recognition and Diagnostic Assessment of Suspicious Skin Lesions

Early recognition and appropriate clinical assessment represented important components of skin cancer management. The literature emphasized evaluating lesion appearance, changes over time, patient history, and relevant risk factors when determining whether further diagnostic investigation was necessary. Chen et al. (2025) conducted a systematic review and meta-analysis involving 100 studies examining the diagnostic accuracy of skin cancer assessment according to lesion type, clinician experience, and examination technique. Their findings demonstrated that dermoscopy improved diagnostic accuracy compared with clinical examination alone. The reported relative odds ratios were 5.7 for melanoma and 2.5 for

keratinocyte carcinoma in the relevant comparisons. These results highlighted the contribution of magnified examination techniques to distinguishing suspicious lesions from benign conditions. The differences in diagnostic performance also demonstrated the importance of clinical expertise. Although dermoscopy provided additional diagnostic information, its effectiveness depended partly on practitioner experience and the circumstances of examination. The findings therefore supported integrating appropriate training and diagnostic techniques rather than assuming that the availability of equipment alone ensured accurate assessment. Importantly, dermoscopy did not eliminate the need for histopathological examination when biopsy was clinically indicated. Recognizing a suspicious lesion represented only one stage in the diagnostic process, which also depended on access to further evaluation and appropriate management. The U.S. Preventive Services Task Force (2023) distinguished the clinical assessment of suspicious lesions from routine visual screening among asymptomatic adolescents and adults. Its recommendation statement concluded that the available evidence was insufficient to determine the balance of benefits and harms of routine screening in individuals without a history of skin cancer. This conclusion did not discourage evaluation of concerning lesions but emphasized the importance of distinguishing individualized assessment from population-wide screening. Additional evidence concerning melanoma presentation was reported by Flynn et al. (2025), who investigated 807 patients with invasive cutaneous melanoma in North Carolina. Rural patients demonstrated higher odds of presenting with tumors thicker than 1.0 mm compared with urban patients, with an odds ratio of 1.78. This association suggested that geographic and healthcare-related circumstances could be relevant to melanoma characteristics at diagnosis. However, the finding did not establish that rural residence independently caused thicker melanoma or delayed clinical recognition. Other patient characteristics, healthcare access conditions, and contextual factors could contribute to the observed association. For outpatient dermatology clinics serving Alamogordo, these studies emphasized the importance of patient education concerning suspicious skin changes, appropriate clinical examination, access to dermoscopy when indicated, and coordinated referral for further evaluation. The evidence supported timely and individualized assessment while recognizing that diagnostic accuracy and clinical outcomes depend on several interconnected factors.

3.5. Rural Healthcare Accessibility and Disparities in Melanoma Outcomes

Healthcare accessibility emerged as a significant concern in the literature addressing skin cancer prevention, diagnosis, and treatment among rural populations. Brumbaugh et al. (2024) described the uneven geographic distribution of dermatological services across the United States and emphasized the importance of workforce development, collaborative clinical arrangements, and remote consultation. Their discussion suggested that rural dermatological care depended not only on the availability of specialists but also on how healthcare services were organized and accessed. National workforce projections provided additional evidence of these challenges. Balboul et al. (2024) examined projected dermatology workforce supply and demand in the United States between 2021 and 2036. Their analysis estimated workforce adequacy in 2021 at 108% for metropolitan areas compared with 39% for nonmetropolitan areas. The projected differences indicated substantial geographic variation in the relationship between dermatology workforce supply and healthcare demand. These findings suggested that conventional specialist-centered delivery arrangements might be insufficient to address dermatological needs in some rural communities. However, national workforce estimates did not describe the precise staffing conditions of clinics in Alamogordo and should not be

interpreted as direct evidence of local workforce shortages. The clinical importance of rural healthcare disparities was further examined by Hernandez et al. (2024), who analyzed 103,606 patients with cutaneous melanoma using national cancer registry data. Rural patients demonstrated lower adjusted odds of receiving recommended surgery compared with urban patients, with an adjusted odds ratio of 0.52. The study also reported a higher adjusted hazard of melanoma-specific mortality among rural patients, with a hazard ratio of 1.19. These findings demonstrated associations between rural residence, treatment receipt, and melanoma-related outcomes. The lower likelihood of recommended surgical treatment suggested that disparities could extend beyond diagnosis into subsequent clinical management. Similarly, the higher mortality hazard underscored the importance of considering continuity of care and access to appropriate treatment. Nevertheless, these associations did not establish that geographic residence alone accounted for the observed differences. Variations in healthcare infrastructure, patient circumstances, referral arrangements, and access to treatment could contribute to disparities. When considered alongside the workforce projections of Balboul et al. (2024), the findings of Hernandez et al. (2024) suggested that improving rural dermatological care required attention to both specialist availability and the organization of patient pathways. Accessible appointments, communication between primary care and dermatology providers, appropriate referrals, and continuity of follow-up may help address practical barriers to care. For Alamogordo, these findings provide a basis for considering coordinated approaches to healthcare delivery rather than assuming that increasing preventive awareness alone will address all clinical needs. The broader implication is that equitable dermatological care depends on connecting prevention and early recognition with appropriate diagnostic evaluation and subsequent treatment.

3.6. Diagnostic Performance and Implementation of Teledermatology

Teledermatology was identified as a potentially useful approach to extending specialist assessment to populations experiencing geographic and logistical barriers to conventional dermatological services. Remote consultation through clinical photographs, digital communication, and dermoscopic imaging may facilitate the evaluation of suspicious lesions and support coordination between primary care providers and dermatology specialists. Parga et al. (2025) conducted a scoping review examining teledermatology in rural skin cancer services. Their review included nine studies addressing diagnostic performance, implementation challenges, and healthcare equity. Reported sensitivity ranged from 41.9% to 100%, while specificity ranged from 46% to 90%, depending on the assessment method and lesion characteristics. The substantial variation in diagnostic estimates indicated that teledermatology performance was influenced by clinical and technological circumstances. Differences in imaging quality, lesion characteristics, practitioner expertise, and consultation procedures limited the interpretation of remote assessment as a uniformly accurate diagnostic approach. Nevertheless, the review identified opportunities for improving specialist accessibility and reducing travel requirements through remote consultation. These findings were relevant to rural healthcare services where patients might otherwise need to travel substantial distances to obtain dermatological assessment. Additional evidence was presented by Nordahl Larsen et al. (2025), who examined teledermoscopy in diagnostic pathways for suspected skin cancer in Denmark. Their observational pilot study included 118 time recordings involving healthcare professionals. Teledermoscopy reduced the time dermatologists spent on diagnostic assessment but increased the time required by participating primary care providers. Among five modeled diagnostic pathways, only one demonstrated an overall reduction in physician time.

These findings illustrated an important distinction between improving efficiency for an individual clinician and improving efficiency across the entire healthcare pathway. Although remote imaging could reduce specialist assessment time, the additional responsibilities assigned to primary care providers could offset these gains. The findings of Parga et al. (2025) and Nordahl Larsen et al. (2025) therefore supported a cautious interpretation of teledermatology. Its potential benefits depended on appropriate imaging procedures, professional training, reliable digital infrastructure, specialist availability, reimbursement arrangements, and clearly established referral pathways. Remote consultation also required mechanisms for obtaining in-person assessment or biopsy when clinically indicated. For dermatological services in Alamogordo, teledermatology may complement conventional care by supporting preliminary assessment, specialist communication, and referral prioritization. However, its potential effectiveness would depend on local clinical resources, technological capacity, and the organization of healthcare services. Overall, the literature indicated that teledermatology represented a possible means of improving access rather than a complete replacement for face-to-face dermatological evaluation. Its contribution to rural healthcare should be assessed in relation to diagnostic safety, patient accessibility, professional workload, and continuity of care.

3.7. Integration of Prevention, Early Detection, and Coordinated Dermatological Care

The reviewed literature demonstrated that skin cancer prevention and early detection involved several complementary clinical and organizational responsibilities. Garbe et al. (2024) emphasized reducing harmful UV exposure through comprehensive protective practices, while Burnette et al. (2026) described community-based approaches to preventive education. Chen et al. (2025) demonstrated the diagnostic contribution of dermoscopy and clinical expertise, whereas Parga et al. (2025) examined the potential of remote consultation to support specialist accessibility. Although these studies addressed different aspects of dermatological practice, their findings collectively suggested that prevention, assessment, and healthcare accessibility should be considered as connected elements of patient care. Primary prevention sought to reduce exposure to known skin cancer risk factors before disease developed. Early recognition and diagnostic assessment focused on identifying potentially malignant lesions and determining appropriate clinical management. Referral coordination and follow-up services addressed the subsequent stages of healthcare delivery. Each component contributed a different function, but limitations in one area could affect a patient's ability to benefit from the others. The findings of Hernandez et al. (2024) reinforced this broader perspective by demonstrating rural disparities in recommended surgical treatment and melanoma-specific mortality. Their results indicated that recognizing suspicious lesions alone was insufficient to ensure appropriate clinical outcomes when subsequent treatment pathways were affected by accessibility challenges. For rural dermatological services, this evidence supported considering a coordinated approach in which preventive counseling, clinical assessment, specialist consultation, and follow-up were integrated into routine practice. Healthcare professionals could provide education about UV protection, explain concerning skin changes, assess lesions using appropriate clinical techniques, and facilitate further evaluation when necessary. Nevertheless, the reviewed studies did not directly evaluate a unified prevention-and-detection program implemented in Alamogordo. Consequently, the proposed integration represents a practice implication developed from the published evidence rather than a demonstrated local intervention outcome. The principal synthesis was that accessible rural dermatological care required attention to both individual preventive behaviors and the healthcare systems supporting diagnosis and treatment.

Strengthening communication among patients, primary care providers, and dermatology specialists may provide a practical foundation for considering more coordinated services.

3.8. Implications for Clinical Practice in Alamogordo and Future Research Priorities

The findings provide relevant considerations for dermatological practice in Alamogordo, New Mexico, particularly regarding preventive education, appropriate lesion assessment, and access to clinical services. According to the National Cancer Institute and Centers for Disease Control and Prevention (2026), Otero County recorded an age-adjusted melanoma incidence rate of 16.9 cases per 100,000 population during 2018–2022, compared with 17.5 cases per 100,000 statewide. Although the county rate was slightly lower than the statewide estimate, these figures did not establish a statistically significant difference or demonstrate the effectiveness of local prevention and detection services. Moreover, melanoma incidence did not represent the complete burden of basal cell carcinoma and cutaneous squamous cell carcinoma. The reported rates therefore provided epidemiological context rather than direct evidence of local healthcare performance. The New Mexico Cancer Council (2026), through the 2026–2031 New Mexico Cancer Plan, identified cancer prevention, healthcare coordination, and community engagement as relevant areas of statewide cancer control. These priorities provided a policy context for considering evidence-informed dermatological initiatives in southern New Mexico. Based on the reviewed literature, outpatient clinics serving Alamogordo and neighboring communities may consider strengthening patient-centered counseling about UV exposure, sunscreen use, protective clothing, and recognition of suspicious lesions. Educational approaches may be particularly relevant when adapted to outdoor employment, recreational activities, patient understanding, and accessible communication methods. Evidence from Heckman et al. (2024) and Naasz et al. (2026) supported the potential usefulness of structured educational interventions, although their reported outcomes could not be assumed to apply directly to Alamogordo residents. Clinical assessment may also benefit from clear procedures for evaluating suspicious lesions, determining when additional examination is required, and communicating the next steps in patient management. The diagnostic findings of Chen et al. (2025) supported the use of appropriate clinical techniques and practitioner expertise, while Flynn et al. (2025) highlighted the relevance of rural circumstances to melanoma presentation. Furthermore, evidence concerning specialist distribution and teledermatology suggested that referral coordination could be an important consideration for rural healthcare delivery. Collaboration between outpatient dermatology clinics, primary care providers, and specialist services may offer opportunities to improve communication and continuity of care. Remote consultation could complement these arrangements when adequate imaging resources, professional training, and clinical safeguards were available. However, the applicability of these approaches depended on local staffing, patient needs, technological infrastructure, referral arrangements, and available healthcare resources. The findings did not establish that the reviewed interventions had been implemented or evaluated in dermatology clinics in Alamogordo. Several priorities for further investigation emerged from the literature. Educational studies frequently measured knowledge, behavioral intentions, and short-term protective practices, leaving questions about sustained behavior and longer-term health outcomes. Diagnostic research emphasized accuracy and examination techniques, while studies concerning rural healthcare disparities examined service availability, treatment utilization, and melanoma outcomes. These differences limited direct comparisons and indicated a need for research examining how preventive and diagnostic strategies function together under routine rural healthcare conditions. Future investigations may therefore examine the implementation of

coordinated dermatological pathways, the feasibility of community-based educational interventions, the timeliness of specialist referrals, and the practical contribution of teledermatology. Research conducted within local healthcare settings could also clarify how patient characteristics, occupational exposure, transportation, clinical resources, and provider coordination influence prevention and early detection services. Taken together, the literature considered in this preliminary synthesis suggested that improving skin cancer prevention and early detection in rural communities required a combination of protective behaviors, appropriate clinical assessment, accessible specialist services, and coordinated healthcare delivery. For Alamogordo, these findings provide an evidence-informed foundation for considering practical improvements in dermatological care. The conclusions remain dependent on the scope of the literature examined and should be consolidated through complete and transparently documented scoping-review searching, screening, and evidence charting before they are presented as the findings of a comprehensive evidence map.

4. CONCLUSIONS AND RECOMMENDATIONS

This preliminary scoping review synthesis highlighted the interconnected importance of skin cancer prevention, early detection, and healthcare accessibility in rural communities. The examined literature demonstrated that comprehensive ultraviolet radiation protection, patient education, appropriate clinical assessment, dermoscopy, and teledermatology offered complementary approaches to addressing skin cancer risks and diagnostic needs. Evidence concerning rural healthcare disparities further indicated that geographic accessibility, specialist availability, and referral coordination were important considerations in obtaining timely evaluation and appropriate treatment. Although educational interventions demonstrated improvements in preventive knowledge and behaviors, their long-term clinical implications remained uncertain. Similarly, diagnostic technologies offered potential benefits but required appropriate professional expertise and supporting healthcare arrangements. For Alamogordo, New Mexico, these findings emphasized the relevance of integrating preventive counseling, individualized lesion assessment, and coordinated referral pathways into rural dermatological practice. Overall, the synthesis provided an evidence-informed foundation for considering accessible, patient-centered, and responsive skin cancer prevention and early detection services.

Dermatology clinics serving Alamogordo and surrounding rural communities should consider strengthening preventive education, timely assessment of suspicious skin lesions, and coordination of healthcare services. Patient counseling should emphasize consistent ultraviolet protection through appropriate sunscreen use, protective clothing, shade-seeking practices, and awareness of concerning skin changes, particularly among individuals frequently engaged in outdoor activities. Healthcare professionals should promote individualized clinical assessment based on patient history, relevant risk factors, and established dermatological recommendations. Dermoscopy and teledermatology may be incorporated into clinical pathways where adequate training, diagnostic resources, technological infrastructure, and referral procedures are available. Collaboration among dermatology specialists, primary healthcare providers, community organizations, and public health agencies should also be encouraged to improve preventive communication and continuity of care. Future research should examine the feasibility, implementation, and longer-term outcomes of these approaches in rural clinical settings, particularly their implications for preventive behaviors, diagnostic accessibility, referral coordination, and patient follow-up.

The synthesis was limited by differences in research designs, study populations, healthcare settings, and reported outcomes, which restricted direct comparisons among preventive and

diagnostic strategies. Educational studies frequently emphasized knowledge and short-term behavioral changes, while diagnostic and accessibility research examined different clinical outcomes. Furthermore, findings from broader national and international rural populations may not fully represent the healthcare conditions and patient characteristics of Alamogordo, New Mexico. The synthesis remained preliminary because comprehensive database searching, eligibility screening, and structured evidence charting had not been completed. Future research should address these limitations through systematic evidence mapping and context-specific evaluations of rural dermatological services.

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