

Scoping Conceptions of Equity: Reviewing a Decade of Physical Activity Research

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Abstract

Lee and Cubbin's (2009) call for a "socially just" Ecological Model of Physical Activity (EMPA) prompted an inquiry into physical activity (PA), active living (AL) research that advances social justice framed as a set of equity-centered principles for research. In response to the call, we conducted a scoping review to explore how PAAL research has operationalized equity to advance a socially-just EMPA. We searched for original research, published between 2010 and 2020, using key terms for 'physical activity' and 'equity' that produced 5,152 non-duplicated records. Title-abstract screening for exclusion/inclusion criteria disqualified 4,392 records. A review protocol and coding guide was developed, piloted, and revised by team members. The remaining 760 abstracts were reviewed and consensus coded for *PA Variable* (dependent or independent) and *Factor* (individual outcome or contextual exposure), *Equity* (population demographic or social-environmental determinant), and *Social Ecological Milieu (SEM)* (PAAL-specific or SEM-general policy, system, or environment (PSE) operations). Of the 463 studies selected, *PA* codified as an individual outcome (67%) more often than as a contextual-exposure (33%) factor. *Equity* codified more frequently as a population demographic (69%) rather than as a social-environmental determinant (31%). The *SEM* codified as PAAL-specific (44%) or as SEM-general (56%) PSE factors. Based on multistep study abstract reviews, the selected studies more often missed the opportunity to center equity in PAAL research by examining social, environmental, political, and systemic factors as institutionalized inequities at the root of PAAL disparities. We will not achieve a socially-just EMPA without shared conceptualizations of equity followed by intentional action.

Keywords: scoping review, social ecological model, physical activity disparity, social justice, equity-centered, social determinants of health

Reflection on Lee and Cubbin's (2009) call for a "socially just" Ecological Model of Physical Activity (EMPA) (Spence & Lee, 2003) that moves us closer toward equity-centered physical activity research prompted an inquiry into the physical activity and active living published literature. To delineate this inquiry, we proposed the project as a scan of a decade of peer-reviewed, original research publications to inform our collective readiness, as a scientific knowledge system (Kramer et al., 2018; Irons, 2019). We questioned the knowledge system's inclination to innovate and integrate equity in physical activity research in principle and practice. The study developed as part of the Physical Activity Policy Research and Evaluation Network (PAPREN) Equity and Inclusion workgroup. PAPREN is a thematic research network of the Prevention Research Centers program of the US Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity that seeks to advance the evidence base supporting physical activity policy and translation of evidence into practice at local, state, and national levels. We were motivated, in part, by Lee and Cubbin's (2009) call to action. Two position papers provided the foundation from which we framed our work moving from "*disparities in physical activity should be investigated in light of social justice principles*" (Lee & Cubbin, 2009) to "*...conducting [physical activity] research employing an equity lens*" (Lee et al., 2021). Recently, Venkateswaran and collaborators (2023) provided a holistic framework that centers equity principles as operational standards for transforming the research enterprise to serve social justice. We adopted the equity-centered framework for organizing our review of physical activity research, and for reflecting on our positionality as researchers in the steps scoping for conceptions of equity.

Ecologic models and frameworks originated from an effort to understand human health and behavior in the context of the ecological milieu in which they occur (Bronfenbrenner, 1977; Lewin, 1997; Marmot et al., 2008; McLeroy et al., 1988; Sallis & Owen, 1997; Stokols, 1992). Over time, these ecological models customized into theories, frameworks, and research to explain health behaviors (Golden & Earp, 2012). Ecologic models recognize that the human experience is part of a larger, dynamic, interactive social and physical system whereby context has a direct and indirect bidirectional impact on health behaviors (Sallis et al., 2008). Several ecological models and frameworks focused intentionally on physical activity (Spence & Lee, 2003) and physically active living (Sallis et al., 2006). More specifically, the EMPA (Spence & Lee, 2003) describes *micro, meso, exo, and macro level environments* that display the dynamic interplay of people, physical activity behavior, and place-based contexts. The EMPA also accounts for mega-level *forces of change* that have powerful influence across all levels, creating unpredictable and disparate consequences throughout the ecologic milieu. Forces of change might include global pandemics, climate change, or geopolitical efforts to ameliorate institutionalized oppression (e.g., racism) (Lee et al., 2021).

Rather than solely emphasizing individual behavior change, public health researchers with aligned interests in

promoting physical activity as a behavioral component of an active lifestyle applied an ecologic frame that included population approaches to active living (Sallis et al., 2006). Public health strategies aim to improve the behavioral context via effective changes in policies, systems, social and built environments (PSE) that presume population reach and population-level outcomes (Honeycutt et al., 2015). Ecologically modeled physical activity research in populations occurs in and across active living domains of *recreation, transportation, occupation, and household* where physical activities occur by design and default (Sallis et al., 2006). Implicit in all of the ecological models, and now more explicit in the 21st century, is the need to address the individual, social and environmental determinants of healthy lifestyles to advance social and behavioral equity (Lee et al., 2021). As Lee and colleagues (2021) contend, this is particularly important for those whose lived experiences have unjustly exposed them to social-environmentally determined, contextual factors that limit their opportunities for physical activity and options for active living, and undermine health equity.

For the purposes of this review, "socially just" applied to an ecologically-modeled physical activity active living (PAAL) research enterprise elucidates a set of equity-centered indicators underpinning research, researching, and researchers (Venkateswaran et al., 2023). These could include positional (Milner, 2007), institutional (Scott & Meyer, 1994), systemic (Kramer et al., 2018), geographic (Schuppert & Wallimann-Helmer, 2014), and exosomic (Juarez et al. 2014) conditions that consider and center equity (inclusion and diversity) in PAAL research as a transformative principle. An equity-centered PAAL research agenda, as a systemic social enterprise, assures the intersectional diversity of intended beneficiaries of science (Kozlowski et al., 2022) experience justice and belonging through institutional change (Wallack, 2019; Venkateswaran et al., 2023).

To determine the extent to which our current PAAL research agenda responds to calls for equity (Hasson et al., 2017; Lee et al., 2021) or social justice (Cardinal, 2022) imperatives, our team utilized a scoping review approach (Munn et al., 2018). We reviewed titles and abstracts from a decade of original physical activity research, conducted in the context of United States (U.S.) policy and systems, conceptually aligned with ecological models of physical activity and active living (Spence & Lee, 2003; Sallis et al., 2006) and an equity-centered framework for transforming research (Venkateswaran et al., 2023). This enabled us to codify the evidence framing PAAL research within and among U.S. populations and places.

Methods

According to Peters et al. (2015), scoping reviews have particular utility when a large, complex, and heterogeneous body of literature needs exploration to clarify key concepts and conceptual limits of research, report the conceptual nature of evidence, identify any gaps in the evidence base, and make recommendations for future research. Adopting the framework of Arksey and O'Malley (2005), our teams

completed steps one through three for conducting a scoping review: (1) distinguishing a research question, (2) identifying relevant research studies, (3) and selecting studies for full-text review. We developed a theoretical protocol for the review using a social ecological model integrating an equity-centered lens across complex individual, social, and environmental systems that influence physical activity and active living behaviors. Social ecological models (Spence & Lee, 2003; Sallis et al., 2006) and an equity-centered organizing framework for research (Venkateswaran et al., 2023) were used to theoretically guide the development of working objectives, project methods, timelines, and/or tasks. The review project team, which initially included several PAPREN-affiliated academic researchers who involved the help of two research institution librarians with expertise in conducting systematic reviews, used a consensus model in creating the protocol, including search strategy and terms.

Scoping Review Steps

Step One: Research Question

Consistent with a scoping review approach (Munn et al., 2018), we began with a broad, overarching research question: In the decade since Lee and Cubbin (2009), how has physical activity research included principles of equity or social justice as a strategy central to advancing a socially-just ecological model of physical activity? Through multiple meetings, the project team collaborated to clarify the scope of study by distinguishing and conceptualizing physical activity and equity specific to U.S. social justice contexts. The overarching research question was refined to elucidate key concepts of *physical activity*, *equity*, and *social ecological milieu* for physical activity and active living, and guide examination of concepts as observable characteristics of a body of PAAL research evidence relevant to advancing socially just translational practices. Consequently, this review aimed to answer the question: How has physical activity research positioned equity as (a) an operational principle for confronting physical activity disparities in U.S.

populations, and (b) a lens central to dismantling U.S. systemic inequities for advancing an equity-centered ecological model of PAAL research?

Step Two: Identifying Relevant Research

In this step, a subgroup of academic researchers from the PAPREN Equity and Inclusion workgroup developed a decision plan for the literature search that emphasized being comprehensive and strategic in identifying original research relevant to answering our research question. An explicit, transparent search strategy combined keywords for *physical activity* and terms associated with the studied behavior, and *equity* along with associated social justice terms, as an integrated conceptual lens reflected in the peer-reviewed, published scientific literature. Academic researchers, in consultation with library faculty providing literature search services, developed minimal search inclusion criteria with search terms and strategies to broaden rather than narrow the search results. A test search in PUBMED of peer-reviewed literature, published in English from January 2010 to October 2020, resulted in 1999 records. Two academic researchers independently test screened a random selection of 5% of these abstracts (n=100 records) followed by a reliability check. Of 100 records, 71% did not meet minimum inclusion criteria. Authors (D.H.J., R.E.L.) collaborated with librarians to refine and retest search terms in order to target literature for study inclusion and selected databases to query to expand literature searched. Following the search pilot, searches conducted of the following electronic databases, PUBMED-MEDLINE, Scopus, PsycINFO, Sociological Abstracts, and SportDiscus, utilized the refined search terms for *physical activity* and *equity* as conceptual conditions surfacing in the research literature. Table 1 provides a final list of terms used for the database searches. Comprehensive database searches yielded 5,152 non-duplicated records. Librarians collated searches and uploaded records using Excel for data management, which enabled access to collected records by step three review teams, comprised of authors (academic researchers and research assistants) and students.

Table 1. List of Terms Used for the Database Searches

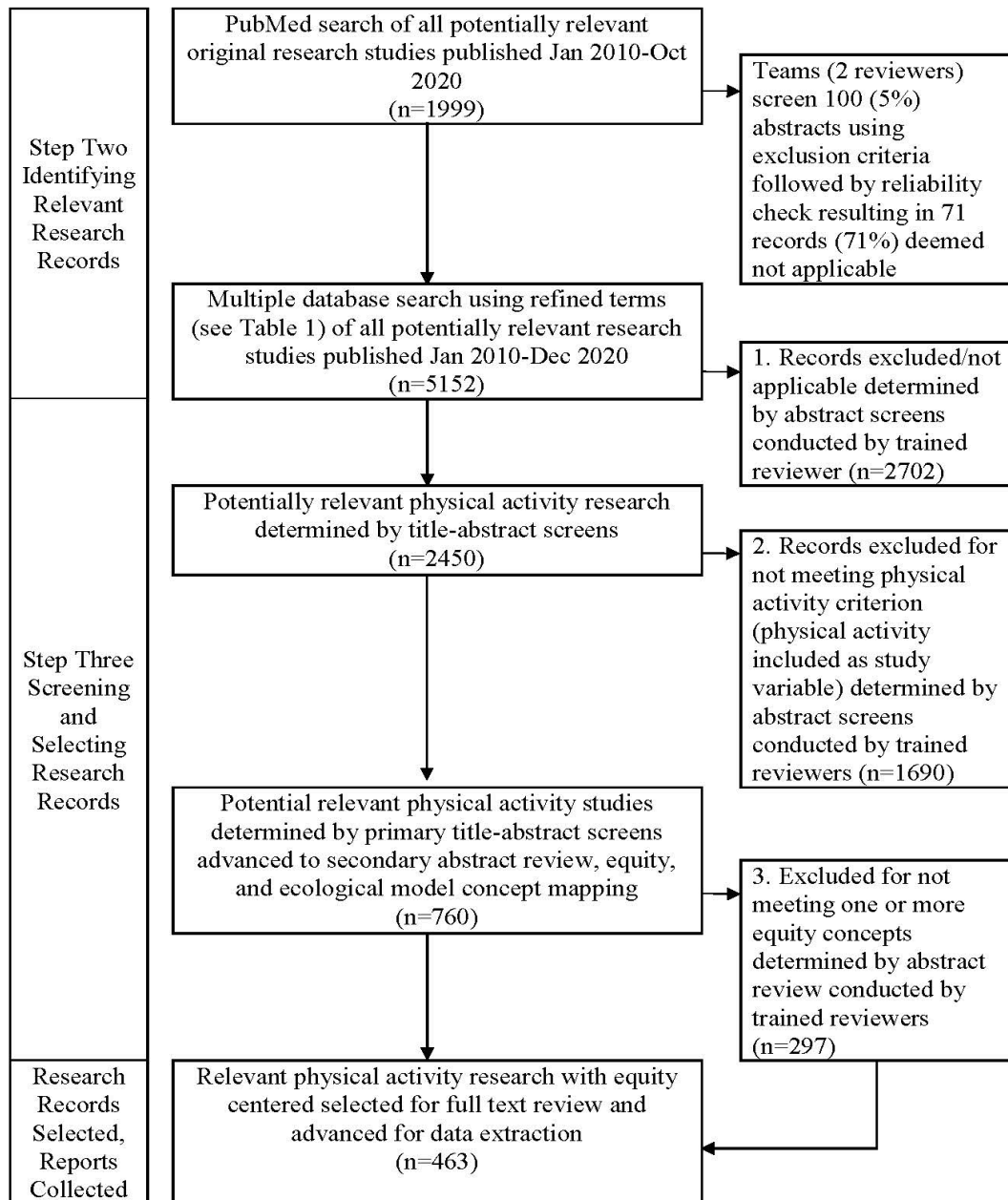
Physical Activity (concept)	Equity (concept)
"Motor Activity"[mesh] OR "Sedentary Behavior"[mesh] OR "Exercise"[mesh] OR "Walking"[mesh] OR "Recreation"[mesh] OR "Leisure Activities"[mh:noexp] OR "Bicycling"[mesh] OR "physical activity"[ti] OR "physical inactivity"[ti] OR "sedentary"[ti] OR "exercise"[ti] OR "walking"[ti] OR "vigorous activity"[ti] OR "moderate activity"[ti] OR "active recreation"[ti] OR "active leisure"[ti] OR "active transport"[ti] OR "active transportation" OR "active travel"[ti] OR "biking"[ti] OR "occupational activity"[ti] OR "physical labor"[ti] OR "household activity"[ti] OR "body movement"[ti]	"Social Justice"[mesh] OR "Health Equity"[mesh] OR "Health Status Disparities"[mesh] OR "Social Determinants of Health"[mesh] OR "Prejudice"[mesh] OR equity[ti] OR inequity[ti] OR equitable[ti] OR inequitable[ti] OR inequities[ti] OR inequality[ti] OR inequalities[ti] OR "social justice"[ti] OR "socially just"[ti] OR "disparity"[ti] OR "disparities"[ti] OR "socioeconomic"[ti] OR "socioenvironmental"[ti] OR "social determinants"[ti] OR "structural determinants"[ti] OR "environmental determinants"[ti] OR "disadvantage"[ti] OR "disadvantages"[ti] OR "disadvantaged"[ti] OR "discrimination"[ti] OR "marginalized"[ti] OR "minority"[ti] OR "minorities"[ti] OR "minoritized"[ti] OR "oppression"[ti] OR "oppressed"[ti] OR "underrepresented"[ti] OR "underresourced"[ti] OR "vulnerable"[ti]

Step Three: Screening and Selecting Research

Abstract screening, selection protocol revising, and abstract reviewing for selection was conducted in three stages, as shown in Figure 1, each preceded by a series of team trainings (facilitated by D.H.J.) and reliability checks (facilitated by D.H.J., S.A., J.G., R.E.L.) for inter-coder consistency. The screening and selecting research step occurred across approximately two academic years,

intentionally involving diverse cohorts of student teams from four U.S. universities in this scoping review step. Researchers screened record titles and abstracts using a shared, duplicate subset of records according to an a priori protocol and set of exclusion criteria to tailor training. Then all teams (researchers and students) participated in tailored training, practiced screening, and checked for reliability, including accuracy to a priori and spreadsheet protocols.

Figure 1. Flow Chart for Scoping Review Steps Two through Three



First, teams screened titles and abstracts in the initial set of 5,152 records for one of four exclusion criteria: non-U.S. research (populations and locales); comment, letter, or position paper; systematic review or meta-analysis; basic,

laboratory, or clinical research with animal or human subjects. Stage 1 screening resulted in excluding 2,702 studies. The remaining 2,450 records were title-abstract screened and coded for potential inclusion as relevant

physical activity research, that is physical activity described in the abstract as a study variable (yes=1; no=0), which excluded an additional 1690 records in stage 2. At each stage, one team member (typically D.H.J.) conducted random reliability checks triangulating accuracy on 20% of records per team. Reviewers flagged records not excluded by reviewer consensus, and flagged records retained in the dataset for review in the subsequent stage. In Step Three, stage 3, the codebook and protocols for reviewing abstracts expanded to include three operationalized categories: *physical activity*, *equity*, and *social ecological milieu* with detailed codebook descriptions and qualitative indicators for reviewing abstract content during coding. Expanded review protocols were applied to the 760 potentially relevant physical activity studies previously determined by title-abstract screening and advanced to abstract review. Trained researcher-student teams from academic institutions of authors (J.G., D.H.J., R.E.L.) each reviewed and coded subsets (200, 360, 200, respectively) of study abstracts. Studies coded and selected as physical activity research included *physical activity* operationalized as one of two variable types, either a dependent outcome or independent contextual element. Once selected as meeting the *physical activity* variable criterion, physical activity was additionally coded as either an individual factor, defined as a behavior or behavior-related factor studied in people, or contextual factor, defined as a studied condition of an intervention, domain, or environment to which people are purposefully exposed or circumstantially encounter. *Equity* operationalized for coding as either population demographic, defined as a demographic identity, diversity, or disparity factor of study populations or subgroups of people, or as social determinant of health behavior, defined as social-environmental circumstances, conditions, or contexts that study participants encounter. The *social ecological milieu* was coded as either PAAL PSE, reviewed as physical activity or active living-specific policy, system, or environment (social, built, natural), or SEM-general

PSE, reviewed as social ecological model general policy, system, or environment, in other words not implemented specifically to influence physical activity or active living. Discrepancies arising between the reviewers at each stage of the study selection process were resolved through further discussion among all reviewers enabled through weekly online team meetings.

Results

Our coding protocol cataloged elements of *physical activity*, *equity*, and *social ecological milieu* in the selected PAAL research studies (N=463). *Physical activity* codified more frequently as an individual factor (n=311; 67.2%) in sample populations included as research participants, reported as a dependent variable, either a behavioral attribute or physical activity-related cognitive or affective outcome. Less frequently, physical activity codified as a contextual factor (n=152; 32.8%), included as an independent variable (intentional or incidental) of an environment, situation, or intervention providing physical activity to which participants included in research were exposed. *Equity* codified more frequently as an individual determinant, described in terms of population demographics (n=320; 69.1%) reflecting sample diversity and physical activity disparities, rather than as a social-environmental determinant (n=143; 30.9%) situated within cultural, geographical, historical, political, and/or social systems as root causes of physical activity inequities. The *social ecological milieu* (SEM) was codified as a PAAL-specific policy, system, or environment in 43.8% (n=203) of the selected studies; SEM-general policy, system, or environment in 56.2% (n=260) of the studies. Table 2 provides a summary of the numerical results (counts and percentages) for each category coded by reviewer consensus with examples of qualitative descriptors for each categorical element coded to the concept.

Table 2. Summary of Distribution of Physical Activity, Equity, and Social Ecological Milieu in Selected Studies (N=463)

Concept Code Category	Selected Studies		Descriptive Examples of Code Indicator
	n	%	
<i>Physical Activity</i>			
Individual Factor; Dependent, Outcome Variable	311	67.2	Total PA, meeting PA guidelines (150 min/week) MVPA, neighborhood walking (leisure, transport, utility), PA self-efficacy, PA intention
Contextual Factor; Independent, Exposure Variable	152	32.8	Yoga, Tai Chi, classroom-based activity breaks, neighborhood walkability
<i>Equity</i>			
Population Demographic	320	69.1	Race (African American), ethnicity (Hispanic/Latino), age (older adults, youth), gender (women, men), income (low, SNAP-eligible)
Social-Environmental Determinant	143	30.9	Schools, neighborhood deprivation, urban-rural geography, churches
<i>Social Ecological Milieu</i>			
PAAL-Specific Policy, System, or Environment	203	43.8	State physical education policy for K-12 schools, built environment park and recreation facility, walkability, bicycling-friendly
SEM-General Policy, System, or Environment	260	56.2	Rural community environment; seasonal weather variations, urban mixed land use, transportation (Complete Streets) policies

Discussion

The purpose of this review was to employ a scoping approach to provide a systematic account of how a decade of PAAL research exhibits characteristics of equity (Hasson et al., 2017; Lee et al., 2021) and social justice (Cardinal, 2022) imperatives, as originated in Lee and Cubbin's (2009) call to action. Most of the selected research studies investigated physical activity as an individual-level factor, a behavioral outcome or behavior-related variable in study participants, rather than as an environmental-level factor or independent circumstance to which study participants were exposed. We suggest this groundwork enumerates the unequal weight assigned by the PAAL research enterprise to examining *micro, meso, exo, macro* level and other socio-environmental contextual circumstances modeled as influential (Spence & Lee, 2003; Sallis et al., 2006). We propose that equity-centered PAAL research should aim to identify and "dismantle the root causes of systemic inequities" (Venkateswaran et al., 2023, p. 6) that disproportionately shape people's physical activity and active living options, opportunities, and outcomes, particularly those not representing the dominant or normative PAAL culture. We found that equity tallied more frequently, and perhaps centered conveniently, as a characterization of the demographic diversity of study populations included in the research, particularly pertaining to physical activity disparities. Less frequently, equity coded as characterizations of social-environmental differences or inequalities. Schuppert and colleague (2014) argued it is only by studying varying inequalities in environmental phenomena, along with multiple, cumulative social vulnerabilities, that we arrive at a critical appraisal of social and environmental risks, and injustices. Our findings suggest this would hold true in advancing a socially-just ecological model of PAAL research. Further, the majority of reviewed abstracts reported on social ecological milieu factors that generally (Sallis & Owen, 1997), rather than specifically (Sallis et al., 2006), shaped contextual features that may support or inhibit physical activity in communities where the research is conducted. On whole, our study groundwork determined that the existing body of PAAL research somewhat reveals equity-centered principles and responds to calls for a socially-just EMPA, however it is in the nascent stages.

Although PAAL research often included historically underrepresented, underserved, and physical activity disparate populations as communities or 'subjects' of study, fewer of the selected studies in this review conceptually incorporated equity as an experiential condition of externally contextualized factors, such as those theorized in the EMPA (Spence & Lee, 2003). Findings suggest that to date, physical activity and active living studies generally do not demonstrate the idea of "knowledge democracy" (Lindhult, 2022) through the robust inclusion of diverse voices, lived experiences, and contextual level factors required of an equity-centered PAAL research enterprise (Venkateswaran et al., 2023). Ideally, equity-centered PAAL research would prioritize contextualized lived experiences of the intersectional diversity of people, across

the human life course, that are, as explained by Andress & Purtill (2020), shaped by the past and present day social-environmental systems and structures that are the root causes for the manifestation of disparities in physical activity and active living. We must also broaden the scope of equity to reach beyond study of individual experiences to include geographical, historical, political, and/or social systems, and dismantle systems of oppression (Venkateswaran et al., 2023). As is often the case in the evolving epistemology of positivistic scientific inquiry, potentially transformative research is hampered by structural barriers, including institutional research practices, notions of the "correct" way to carry out research, and parochial rules about evidence validity or measure reliability (Galster, 2011; Graves et al., 2022; Krieger, 2001; Marmot et al., 2008; Schrecker, 2013). We suspect that orthodox research practices and systems fail to characterize the nature and scope of the social ecological influences on population-level physical activity outcomes. This is particularly concerning given the intersectional diversity of people allegedly included in an equity-centered, ecological model for PAAL research vital for all Americans. Although many have described the problem using frameworks and models, such as a social ecologic milieu or structural competency, institutionalized challenges are often difficult to define and document because of the very nature of U.S. historical and present day social inequalities that are systematized into people's daily lives and across the life course (Lee et al., 2021; Andress & Purtill, 2020). Thus, perhaps owing to practical challenges, the existing work primarily relies on broad classifications and time-tested categorizations of individuals who have potentially experienced these social systems across a variety of active living domains.

When elements of the social ecological milieu emerged in the review of PAAL research literature, our results suggest that the equity element of the social ecologic model manifested in two forms. First, equity typified as research participant access to physical activity or active living-specific PSE interventions (e.g., state physical education policy for K-12 schools or city park revitalization), often at specific ecologic levels, such as community organization, provider system, neighborhood or community space (e.g., church, school district, city park and recreational sport fields, respectively). Further, equity elements characterized in physical activity and active living-specific PSE studies targeted to a specific active living domain, likely *recreation* or *transportation* (Sallis et al., 2006), and demographic group, such as 'African Americans' or 'low-income minorities.' These findings suggest that PAAL research rarely considered intersectional group differences within and across a studied population, domain, or setting. Practical exclusions from physical activity research studies, as well as research participant access inequalities, may influence who (participants) and what (physical activity) was represented in the literature, which could generate gaps in the PAAL research evidence by design or default.

Second, our results indicate that the equity element of the social ecological milieu appeared also as a general PSE

circumstance (e.g., rural environment or urban transportation policy) that was not specifically designed to influence physical activity but might do so disproportionately as a co-benefit or cost. As Lee and colleagues (2021) suggest, these ecologically modeled physical activity studies are an appropriate and necessary step toward considering contextual factors that have the potential to socially benefit large swaths of the population, an important consideration in active living research (Sallis et al., 2006). Largely missing in the selected PAAL research were indicators of general PSE factors so enduring and widespread that they, possibly, are not even considered in the study of physical activity. For example, zoning laws can inhibit or facilitate physical activity and active living among populations reached by these rules, but physical activity and active living outcomes are rarely given consideration in their enactment (Ingram et al., 2020; Malloy et al., 2022). Another classic example is housing policies that have restricted area of residence and exacerbated xenophobia resulting in tragic assaults, even deaths (e.g., Ahmaud Arbery) of people of color while exercising their civil liberties (Hornbuckle, 2021).

Our scoping review approach provided the initial structure and steps in identifying equity-centered principles for transforming physical activity and active living research in order to advance a socially-just ecological model of PAAL evidence for practice. A transformed research agenda (Graves et al., 2022) that incorporates principles of equity to achieve socially-just PAAL research (Venkateswaran et al., 2023) could shift the current paradigm. A paradigmatic shift enabling us to recognize past and present-day inequities, which show up as structural and relational forces denying opportunities and resources (Kramer et al., 2018) that reinforce inequalities in PAAL research. An equity-centered transformative research approach consciously reconstructs the status quo research paradigm (beliefs, structures, and hierarchies) and facilitates systemic and societal change in the construction of evidence and transfer of knowledge. This new agenda would frame PAAL research to shape future policy, practice, and funding priorities that foster equitable physical activity access and active living opportunities across the social ecological milieu (Lee et al. 2021; Santos et al., 2022). The framework and findings resulting from this review of study abstracts will be used to further evaluate the full text of selected publications as well as to study the process of “researching” and the people who conduct research as part of a knowledge system. These next steps will enable us to envision and inform a PAAL research agenda that addresses methodological and structural inequities in designing and implementing population-level intervention and evaluation studies. This process aims to advance research access, agency, and activism across shareholders and beneficiaries; remove inclusion barriers; and support systemic changes aligned with a socially just, ecological model of PAAL.

Strengths and Limitations

A strength of this study was our teams’ collective positionality. Positionality is the idea that each researcher’s

identities, experiences, and ideologies influence how we interact with the world and each other. We felt it necessary in discussing an equity-centered research framework (Venkateswaran et al., 2023) in the context of PAAL research to consider how each author’s social and scholarly identities and training informed our collective positionality and contemplative practices in the progression of the review. We acknowledge that as individual researchers, we bring distinct perspectives and philosophies to our scholarly work, and recognize that our intersectional identities shape this work, as do our current and past experiences. Our collective positionality and collaborative approach revealed gaps in how PAAL research, an institutional enterprise, centered equity in principle, which suggested our course for the subsequent application of these principles to the researching endeavor.

Engaging and training a diversity of student mentees across this research enterprise emerged as a situational strength requiring substantial critical and instrumental mentoring. Providing ongoing training, mentoring, and remote engagement to learners from multiple academic institutions across a range of diverse fields of study enabled us all to learn collaboratively in an inter-institutional context. One undergraduate research mentee shared they “learned to read and think differently about equity” in the context of PAAL research. Both undergraduate and graduate students voiced how their “equity lens focused” relative to the PAAL evidence base, and consequently informed their understanding of “how unfairly evidence translates into physical activity and active living promotion practices,” which may appear inadvertently as a compelling move toward centering equity in PAAL research. It is important to recognize these positions as strengths and challenges simultaneously. We call for other researchers to consider how their backgrounds, and those of their students, shape research and what is considered essential for the research, what and who is included, as well as excluded, who benefits and to what end.

Integrating social ecological models (Spence & Lee, 2003; Sallis et al., 2006) with an equity-centered lens for research (Venkateswaran et al., 2023) produced a theoretically framed a priori review protocol as a systemic innovation. The innovation, systematically utilized in scoping review of 10 years of peer-reviewed research abstracts, and rigorously applied across complex individual, social, and environmental systems that influence physical activity and active living behaviors, guided achievement of review consensus in aims, approaches, and trustworthiness of outcomes. An additional strength was a shared lens with theoretical foundation addressing a longstanding, identified gap emerging from a call for social justice (Lee & Cubbin, 2009). This foundational review classified the PAAL research evidence, elucidated components and indicators of equity-centered operations underpinning research (Venkateswaran et al., 2023), and initiated an innovation for advancing physical activity and active living equity as a consideration within the research and practice communities.

The scoping review had several limitations that warrant nothing. A worthwhile challenge to this study was conducting conceptual research on principles of equity in the scholarly context of physical activity while taking account of the unique positionality of collaborating researchers and reviewers. Although our team comprised of members with differing lenses, lived experiences, training, and social identities (e.g., race, ethnicity), we acknowledge that other ways of being and interpreting the world could differently shape this discussion. A further challenge was examining the concepts of equity in PAAL research under evolving conditions in the U.S. where these principles hold weight due to population health disparities and social inequalities, yet instrumentally questioned despite public calls for social and environmental justice. Operationally, our literature search and review was limited to peer-reviewed publications of original physical activity research conducted in U.S. population, place, and policy contexts. Choice of search terms and criteria for exclusion-inclusion might have missed some relevant studies. Also, limiting reviewed abstracts and selection of studies with physical activity as either individual outcome (dependent) or contextual exposure (independent) variables narrowed the scope of review, excluding a large body of health disparities research that included physical activity as a factor in research of primary health outcomes, or extraneous in contexts where health research was conducted. Last, a shortcoming of reporting results at step three of the scoping review is the absence of descriptive and nuanced findings emerging from full text reviews of the selected studies, a qualitative approach necessary for expanding our understanding of the quantitative findings we reported.

Our theoretically framed (Spence & Lee, 2003; Sallis et al., 2006; Venkateswaran, et al., 2023) scoping review of a decade of physical activity and active living original research revealed principles of equity integrated to a greater degree as participant socio-demographic characteristics. On the other hand, we found that demonstrations of equity in physical activity and active living scientific literature were least likely to characterize contextually as socio-ecologically modeled, policy, system, and environment factors. Our evidence review and subsequent results revealed gaps in equity considerations when studying multi-level approaches in U.S. populations, places, and policy contexts designed to assure just availability and easy access of physical activity and active living resources for meeting the physical activity guidelines for *all* Americans (Piercy et al., 2018). In conclusion, our initial study contributes to calls to increase the capacity of researchers and institutions to scale up PAAL research that reflects a socially just, equity-centered framework.

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We have no conflicts to disclose.

Author Contributions

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