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Social Ecological Constraints to Park Use in Communities with Quality Access

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**Livable Lives Initiative
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The university-wide Livable Lives Initiative investigates what social conditions and policy supports can make life with a low or moderate income stable, secure, satisfying, and successful. The aim is to build a large body of work that informs local programs as well as state and federal policies in economic security, employment, public health, education, housing, and other key areas.

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Social Ecological Constraints to Park Use in Communities with Quality Access

Evidence correlates physical activity, psychological restoration, and social health to proximity to parks and sites of recreation. The purpose of this study was to identify perceived constraints to park use in low-income communities facing significant health disparities, with access to underutilized parks. We used a series of focus groups with families, teens, and older adults in neighborhoods with similar demographic distribution and access to parks over 125 acres in size. Constraints to park use varied across age groups as well as across social ecological levels, with perceived constraints to individuals, user groups, communities, and society. Policies and interventions aimed at increasing park use must specifically address barriers across social ecological levels to be successful.

Key words: *parks, access, quality of life, communities of color, barriers*

Public health research has shown significant correlation between proximity to public parks and an increase in physical activity (Kaczynski, Potwarka, Smale, & Havitz, 2009). Parks have a positive impact on physical, social, and psychological well-being (Maller et al., 2008; Maroko, Maantay, Sohler, Grady, & Arno, 2009). The emerging philosophy of wellness, or optimal well-being, in recreation and leisure research acknowledges parks as sites for a wide spectrum of physical activities, psychophysiological restoration, and social cohesion (Spangler & O’Sullivan, 2006).

Although previous research has consistently shown positive influences of access to parks and park use (Wolch et al., 2011), fewer studies look at social ecological drivers of park use and barriers to park use. This is especially true for older U.S. cities where there is relatively even access to community parks. Several studies of barriers to park use have identified proximity as a primary barrier (Cohen, Ashwood, et al., 2006; Kaczynski et al., 2009; Mowen, Orsega-Smith, Payne, Ainsworth, & Godbey, 2007; van Lenthe, Brug, & Mackenbach, 2005; Wolch et al., 2011). However access and proximity are not always measurable by physical distance alone. There is a need to understand park use from a social and environmental perspective as well. Understanding gaps that exist from the perspective of social norms and issues around perception of safety, affordances, and amenities across age groups is critical to improving access and use of existing park resources.

The City of St. Louis is rich in terms of its number of parks. However, differences in use of parks within St. Louis, particularly those embedded in areas with a high proportion of low-income households, create the impetus for the present study. According to the Trust for Public Land (2010), the city of St. Louis has 9.6 acres of park per resident, 50% more than Los Angeles and more than double both New York City and Chicago. Yet, St. Louis has significantly adverse health indicators, including a death rate that is 14% higher than the rest of Missouri and 32% higher than the U.S.

average, and heart disease mortality of 1.4 times the rate of the U.S. average (City of St. Louis Department of Health, 2007).

The scope of the present study uses grounded theory (Glaser, 2002) to begin to understand constraints in park use in communities with quality access to parks that still face daunting health disparities. This juxtaposition of high access and poor outcomes points to a gap in current research and policy efforts concerning parks and health. These gaps point to the need to solidify the causal pathway between exposure to parks and beneficial health behaviors and outcomes.

Methods

Our primary objective was identifying reasons for the underutilization of two greater St. Louis community parks through a series of age-dependent focus groups. Our approach was three-pronged, focusing on specific attributes related to perceived physical, social, and psychological health. To expand our understanding of the relationship between outdoor spaces and health, we also asked respondents to identify the places they frequent to satisfy health and recreational needs associated with social, physical, and psychological well-being. All procedures were approved by the university's Institutional Review Board

Study sites

Park A and Park B are located at the heart of predominantly low-income communities of color in the city and county, respectively, of Saint Louis, Missouri, USA. The two communities are comparable in their high rates of poverty, high proportion of minority residents, and existing plans for expanded or improved parks and open space. Both parks are over 125 acres in size. According to the 2000 U.S. Census, the census tract surrounding Park A has a poverty rate of 27% (compared to 21% city-wide and 13% for Missouri) and is 99% minority. Park A has architectural renderings of a \$22 million recreation center to be built in 2011 and an additional \$300,000 - \$500,000 in funds available to reinvigorate the park associated with the building of the recreation center. Park B is a county park located about 4.5 miles west of Park A. According to the U.S. Census (2000), the census tract has a poverty rate of 30% and is 92% minority.

Focus groups and walk-alongs

Three age group-specific focus groups were conducted in community buildings proximate to the parks. The groups were youth, families, and older adults, and the group size ranged from six to twelve individuals, with the exception of one youth focus group that included sixteen students.

The focus groups were designed to facilitate discussion about the parks: how the respondents used the parks, where and when they used the parks, why they did not use the parks, and what would

need to change for them to use the parks effectively. Each focus group followed a series of questions, which were provided to the participants.

Following this discussion, focus group participants were asked about their favorite places to visit in their respective neighborhoods. An example of a question that was asked is “If you are not visiting the park for exercise and relaxation, where are you visiting?” In general, participants were questioned about their favorite places for physical activity, leisure, and psychological restoration.

The focus groups were scheduled for two hours in the evening, and dinner provided. At the completion of the two hours, participants were provided a \$10 gift certificate to a local market. All focus groups were digitally recorded and transcribed for analysis.

In addition to the focus groups, one park walk-along was conducted with one adult resident of each neighborhood. Researchers met each participant at a designated point within the park and walked together through the park for approximately 45 minutes. Participants were provided a digital camera to take photos during this time. They were asked questions about their feelings toward the park, how they used the park, and reasons why they did or did not visit the park. At the completion of the 45 minutes they were provided a \$10 gift certificate. The walk-along conversations were digitally recorded and transcribed for analysis.

Recruitment and study sample

Participants were recruited with the assistance of two community gatekeepers or community organizers living and working in the neighborhood (Jensen, 2008). The gatekeepers posted and passed out recruitment fliers and hosted the focus groups in their buildings. The gatekeepers were not present during the actual focus groups or walk-alongs.

In total, 53 individuals participated in this study, with an age range of 7 - 95 years old. Nineteen teenagers (11–18 years of age) participated in the youth focus groups. Twelve individuals participated in the two family focus groups, which included at least one parent or guardian with at least one child. Twenty older adults participated in the senior focus groups (19 of 20 were over the age of 60 years old). Two single, adult males, ages 20 and 37, participated in the in-park walk-alongs. All individuals resided in the same neighborhoods as the parks of interest.

Data analysis

Inductive and thematic analysis was conducted across the focus group transcripts, using a framework approach to classify data according to key themes and emergent categories (Ritchie & Lewis, 2003). Transcripts were code mapped using NVivo 8.

There were three broad categories we were originally interested in, as structured in the focus group questions: current park use, barriers to park use, and desired changes in parks for the benefit of

physical, psychological, and social well-being. As the nodes for coding the data were identified, we recognized several distinct patterns. To further investigate these patterns, we used constant comparison between age groups and across social ecological systems.

Results

Inductive analysis revealed that constraints in local park use were not only perceived across age groups but also at the nexus of social ecological systems. Though some specific constraints were unique to the individual neighborhoods and parks, there were some shared constraints. In total, perceived constraints addressed in the six focus groups and two walk-alongs organized into the social ecological categories- of micro, meso, exo, and macro (Bronfenbrenner, 1977). Micro constraints are perceived constraints to individuals utilizing the parks. Meso constraints affect specific user groups, such as families, teens, or older adults. Exo constraints equally constrain park use by all members of the community. Macro constraints are society-level impacts on park use.

Micro

There are several perceived individual-level constraints. These barriers were identified as keeping individuals from using the park. In Park A, cleanliness and lack of maintenance constrained the use of the park for multiple participants. Individuals spoke of specific uses and instances of constraints to these uses due to lapses in maintenance and overall park cleanliness. In reference to sidewalks with gaps and in disrepair, a youth in the family focus group reported; *"We had to get off our bikes, and get on the bikes, and get off, and get on."* Three youths in the teen focus group responded similarly: Y1: *"People fight over the swings."* Y2: *"Yeah, there need to be more swings. Right, like a lot of swings."* Y3: *"New slides because they cracked open and stuff."* Y1: *"Like people can cut themselves on rocks and glass."* Y3: *"It's six swings, but four work because they thrown them around and they get stuck. We just spent time on the swings; the ones we have left."* Individuals felt their specific experiences in the park were constrained when use was limited by lapses in maintenance.

In Park B, the primary perceived individual constraint was the design of the park entrance. The park has a bottleneck design, requiring visitors to enter the primary usable spaces of the park via a driveway one-half mile long. Individuals perceived this long entrance as separating them from the usable spaces of the park and acting as enough of a constraint to limit use. A parent stated; *"It's kind of dangerous for the kids to walk there because it's such a long stretch and it's only two lanes. There's no patrol or no security up at the park. And that would be my concern."* An older adult echoed the sentiment; *"It's about a mile to get to the park, to get to the events. I would never make it."* Recent improvements to the park include a greenway extension that is separate and one-quarter mile east of the driveway, but access remains an individual barrier due to safety concerns associated with limited visibility of the greenway.

Meso

Focus groups also perceived constraints to park use specific to user groups. In Park A, a perceived lack of seating especially limited use by older adults. Older adults reported going to the park the most, but their most common use was driving to the park with friends and remaining in their car, parked by the park's lake. Several older adults socialized with their peers in their cars each morning. One older adult said; *"Seniors [would] love to go and sit and fish for a while. [The park needs] more tables with bench seats on the other side to get people out of their car."*

Teens living near Park B all attend the same public high school, which has removed physical education from their curriculum. This lack of modeling of healthy behavior, play, and time outdoors has affected their perception of parks and the outdoors. One interaction in the teen focus group proceeded as follows: Y1: *"What's recess?"* Y2: *"We all in high school, we don't have recess."* Y3: *"We don't even get to go outside. We don't even go outside."* The lack of physical education and time spent outdoors during structured time may have lead to these additional comments about why the students do not access the park: Y4: *"It's not so much that there's something there that I would change, it's just that I just don't go."* Y5: *"Right. It's hot, bugs, and stuff."* Y6: *"I mean there's nothing that I want to change, I just don't go. It ain't me."* These macro constraints are limiting entire age groups from park use, forcing them to find other outlets for well-being or constraining these efforts.

Exo

The two separate neighborhoods identified distinct community-level constraints that were consistent across age groups. Park A is accessible from a freeway exit and thus the community perceives that there are many "outsiders" that use their park for inappropriate reasons. This has led to safety concerns. A parent at the family focus group stated; *"Like on the weekend, the whole crowd of different people from different places, other places, they come to our park and when they come to our park they hang out and they doing things in the pavilion. What they shouldn't be doing in the pavilions."* Another parent echoed the sentiment; *"When I was a kid, every weekend, I would ride across the street. We looked forward to going to the park, you know? It was all kinds of cheap activities. But now it's a totally different set of people."* An older adult reported; *"There is homeless people everywhere. And they grab a ticket, they catch a bus, they come out this way for a night and stay on the benches and then go back downtown. And they can, they can, they travel. So, if there is benches, especially in the summertime, you are going to see people lying on top of those benches."* Residents feel the "outsiders" have brought drugs, drinking, and violence to the park. The teen focus group occurred the day after a gun was reportedly fired in the park. A student shared; *"I was thinking about having my birthday in the park but I changed my mind after what happened."* The perceived lack of safety constrains many from using the park. An older adult summarized; *"I would love to be able to use [the park]. I would love to, but a lot that needs to be put in place before I feel safe. I don't feel safe in the park."*

In contrast, Park B is perceived as a safe environment, and a park ranger confirmed this perception, noting that there had only been one incident report, a car break-in, during the preceding year. The

community, however, perceives that local policies and city officials are constraining their use of Park B and other, smaller parks in the community. One parent was frustrated; *“Football; there’s a turnout. It’s a very large turnout, but the kids were escorted off the park by the police during practice last year because there was a misunderstanding about the insurance paid on the field. The year before that, the mayor wouldn’t let them use the park so the coaches would take them over on the other side of [the street] where the coach just has an empty lot across the street. So they would practice across the lot.”* The same parent continued; *“I worked as a park guard. And for what they pay and what you do, it’s not worth it, because you have to tell kids who are like adults, stop cursing, or get off the court. And here it’s daylight and you’re telling me I have to leave the park? And I was like, ‘Uh-uh.’ It’s not worth it and a lot of them have a good point. Why we can’t use this basketball court? This is the only basketball court.”* Another parent was frustrated with having to pay to use the community center in Park B: *“Now we live in this community. We shouldn’t have to pay an arm and a leg to use them banquet rooms at [the park]. So, something interesting; like I just did a birthday party for my grandbaby. Did it in the gym [of a park further away].”* At a separate, smaller park an older adult explained why the picnic pavilion was currently surrounded in caution tape: *“They [youth] were on top of the pavilion the last time we opened it up for the first time. Instead of sitting under, they get on top of it and it has got this plastic dome on top. We don’t want anybody to hurt themselves, so I locked it [park pavilion] back until we can start hiring workers for the different things.”* Policies established to limit liability and assure safe use of parks are now perceived as constraining the beneficial uses desired by residents.

Macro

The macro level, or societal, constraints were similar across the two parks. One constraint is perhaps unique to this metropolitan area: the perceived diversion of funds and support to larger, more visible parks. St. Louis is fortunate to have two parks that had more than 12 million individual visits during 2010: the city’s Forest Park and the federal Jefferson National Expansion Memorial Park, home to the Gateway Arch. An older adult said; *“But in the end what happened, they put it all [money, improvements] in the riverfront. That’s when the kids started, really started, acting up and so, we were afraid to go to the park.”* Another older adult offered; *“But look what [a neighboring city] has. A park. It’s a charter city. We are a fourth class city. There’s a difference in the funding.”* A parent in the family focus group stated; *“That’s where the money goes, to beautify Forest Park.”*

Participants also identified three societal constraints in current park use: an increase in portable and personal equipment, the proliferation of organized sports for youth, and the current economic downturn. Parents believed kids and families were not using the park because they have equipment at home and don’t need to access the park for play. *“They have it at home, you know, in the backyard. Our yards are huge, so we have it at home.”* Another said, *“I have an exercise bike in the house. I don’t go to the park because it’s dangerous, frankly.”* An older adult perceived the lack of basketball in the park was due to organized leagues around the city: *“What happened was all this community basketball went to these paying people where they charge you. That’s why we don’t see it [kids playing sports in the park].”*

The economy and related unemployment rate was raised by multiple participants. Many parents and older adults spoke about groups of people illegally drinking in the parks and “hanging about.” A parent said; *“Now it’s so many people hanging out. Then here there are so many people drinking and drugging where you don’t want to take these kids over there for anything like that because you don’t really know what’s going to happen.”* Interestingly, one of the park walk-alongs was with an unemployed man. During the walk along he expressed; *“We would come here after work and this would be the meet up spot and we would just hang out and enjoy, you know, a little happy hour and kick back in the park and just kick back and relax. And go home to the family after that... Now that most people are unemployed, now it [park] has become like, this is like, the safe haven. Make like a sanctuary, so to speak. You know, where we just come and once again, peace of mind, and get away from home because you’re stuck at home.”* These two separate comments, one from a parent and the other from an unemployed, single adult speak to the social-ecological challenges facing park administrators.

Discussion

Public parks increase healthy behaviors (Shores & West, 2010; Sugiyama, Francis, Middleton, Owen, & Giles-Corti, 2010) and any constraint to park use should be taken seriously by municipal and park management and by public health professionals. Past research has shown quantitative and qualitative barriers to public park use, including distance, access, and perceptions of unsafe environments (Cohen, Marsh, et al., 2010; Seaman, Jones, & Ellaway, 2010). With the present study, we advance the understanding of barriers to park use, and associated healthy behaviors, by incorporating viewpoints and constraints across different age groups at the same parks. More significantly, this research reveals that perceived constraints to park use are nested in the context of social-ecological systems, with constraints for individuals, user groups, communities, and society as a whole.

In this study the most commonly perceived individual constraints were lack of maintenance in Park A and associated attributes, and the entrance design to Park B. Regarding both parks, individuals reported being unable to access and enjoy the park to its fullest because of these constraints. Though an individual park, even at 125 acres, cannot afford every attribute desired, core attributes should be present for individuals to utilize. These include sidewalks/walking paths, playground equipment for children, and an accessible entrance.

Specific user groups also perceived constraints in their use of the parks. Older adults reported a lack of amenities and structure in the parks. The older adults were the most frequent users of both parks, with their primary use being social interactions. In Park A, the social interactions were limited to driving to the park, parking the car by the lake, and staying seated in the car to enjoy each other’s companionship. The older adults did not feel there were enough benches, tables, structure, or safety for them to exit their cars and more fully enjoy the park. At Park B, teens had limited interest in visiting the park. They reported no outdoor time at their high school and no physical activity time aside from organized sports. Without the appropriate modeling of outdoor behavior and play, these teens were limited in their perceived uses of the park and thus did not visit their community park.

In addition, respondents felt constrained in their utilization of the parks because of factors within their own communities. The neighborhood around Park A, and Park A itself, have challenges with gang activity and associated crime. Most of the participants in the three focus groups at Park A, or their families, are longtime residents of the neighborhood and perceive the increase in crime and constraints to park use as directly associated with an increased presence of “outsiders.” The parents and older adults in the focus groups could recall the building of a freeway along the north side of the park and the inclusion of an off ramp directly into the park. This ease of vehicular access is now negatively perceived by the community, as it provides people from other communities the ability to come into their park, crowd the park with cars, and engage in unruly behavior. As “outsiders,” these visitors are immune to social and peer consequences associated with neighbors observing neighbors.

Park B participants spoke at length about the constraints associated with local park policies. They were frustrated with paying fees to use pavilions and community space in addition to their frustration with liability issues. Park B and smaller, nearby parks, have strict use hours and require permits for organized events. Residents felt their tax dollars should entitle them to much freer access to these parks and pavilions. The respondents expressed a very “us against them” mentality regarding park management, and acknowledged this relationship must improve if use of the park and health in the community are to improve.

Finally, focus groups discussed societal constraints. Both neighborhoods believe park funds are diverted from the local communities to two larger, more visible regional parks —Forest Park and Jefferson National Expansion Memorial Park—that are popular with both locals and tourists. Over the past ten years, Forest Park has received a \$100 million restoration and the Jefferson National Expansion Memorial Park is set for a renovation in time for the 50th anniversary of the Gateway Arch in 2015. Though residents expressed appreciation for these city icons, they were frustrated that their local, neighborhood parks were not being well maintained.

Other societal constraints referenced were the increase in personal sports and athletic equipment and the proliferation of organized sports for youth. Some focus group participants felt that these two constraints were keeping kids, and thus families, from using local parks. The current economic downturn was also raised directly and indirectly by participants. While some parks across the US have reported increases in park use associated with families attempting to reduce expenditures (Godbey & Mowen, 2010), these communities have not enjoyed such an increase in park use. Multiple parents and older adults felt that the high rate of poverty and unemployment in the community increased the gathering of adult males in the park for drinking and loud socializing. These activities are experienced as a barrier to park use by others in the community.

The six focus groups and two park walk-alongs provided rich, qualitative data associated with perceived constraints in park use in these two communities. However, these are only two communities in St. Louis, and those who participated perhaps have a high selection bias related to

interest in improving the parks and neighborhoods. In addition, by using community gatekeepers to identify participants, we possibly limited the variety of opinions and perceptions present in the focus groups. Indeed, not everyone felt constrained in using the park, as evidenced by the unemployed adult male respondent who reported using the park each day. However, to increase park use and healthy behaviors in communities, it will take the modeling of these behaviors by those invested in seeing improvements. Each of the family and older adult focus groups independently brought up the idea of a “Friends of Park A/B” community group to champion their local park. They wanted to model these groups on the successful Forest Park Forever group that has led much of the fundraising associated with improvements to Forest Park.

Considering perceived constraints to park use across social-ecological systems is an important insight gained from these focus groups. Park policies, improvements, and interventions need to address each of the social-ecological systems to effectively eliminate barriers to park use and associated healthy behaviors. A first step is to acknowledge the barriers to park use and assure that local stakeholders are aware of these barriers. In light of this recommendation, the gatekeepers associated with this project have been provided transcripts of the focus groups (with individual identifiers removed) and an opportunity to discuss the focus groups with the researchers. Improvements in park use and healthy behaviors will take a fully concerted effort with direct attention to each system at play.

References

- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 513-531.
- City of St Louis Department of Health. (2007). *Public health: Understanding our needs*. St. Louis, MO: City of Saint Louis Department of Health.
- Cohen, D. A., Ashwood, J. S., Scott, M. M., Overton, A., Evenson, K. R., Porter, D., et al. (2006). Public parks and physical activity among adolescent girls. *Pediatrics*, 115(5), 1381-1389.
- Cohen, D. A., Marsh, T., Williamson, S., Derose, K. P., Martinez, H., Setodji, C., et al. (2010). Parks and physical activity: Why are some parks used more than others? *Preventive Medicine*, 50(Supplement 1), S9-S12.
- Glaser, B. G. (2002). Conceptualization: On theory and theorizing using grounded theory. *International Journal of Qualitative Methods*, 1(2), 31.
- Godbey, G., & Mowen, A. J. (2010). *The benefits of physical activity provided by park and recreation services: The scientific evidence*. Ashburn, VA: National Recreation and Park Association.
- Jensen, D. (2008). Access. In L. M. Given (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 2-3). Thousand Oaks, CA: SAGE Publications.
- Kaczynski, A. T., Potwarka, L. R., Smale, B. J. A., & Havitz, M. E. (2009). Association of parkland proximity with neighborhood and park-based physical activity: Variations by gender and age. *Leisure Sciences*, 31(2), 174-191.
- Maller, C., Townsend, M., St. Leger, L., Henderson-Wilson, C., Pryor, A., Prosser, L., et al. (2008). *Healthy parks, healthy people: The health benefits of contact with nature in a park context, a review of relevant literature*. Burlwood, Melbourne: Deakin University and Parks Victoria.
- Maroko, A., Maantay, J., Sohler, N., Grady, K., & Arno, P. (2009). The complexities of measuring access to parks and physical activity sites in New York City: A quantitative and qualitative approach. *International Journal of Health Geographics*, 8(1), 34.
- Mowen, A., Orsega-Smith, E., Payne, L., Ainsworth, B., & Godbey, G. (2007). The role of park proximity and social support in shaping park visitation, physical activity, and perceived health among older adults. *Journal of Physical Activity and Health*, 4, 167-179.
- Ritchie, J., & Lewis, J. (2003). *Qualitative research practice: a guide for social science students and researchers*. London: Sage.
- Seaman, P., Jones, R., & Ellaway, A. (2010). It's not just about the park, it's about integration too: Why people choose to use or not use urban greenspaces. *International Journal of Behavioral Nutrition and Physical Activity*, 7(1), 78.

- Shores, K. A., & West, S. T. (2010). Rural and urban park visits and park-based physical activity. *Preventive Medicine, 50*(Supplement 1), S13-S17.
- Spangler, K., & O'Sullivan, E. Health, fitness, wellness & livability. (2006). In G. Kassing, M. Feld, M. Rivera, & A. Pierce (Eds.), *Introduction to recreation and leisure* (pp. 289-354). Champaign: Human Kinetics.
- Sugiyama, T., Francis, J., Middleton, N. J., Owen, N., & Giles-Corti, B. (2010). Associations between recreational walking and attractiveness, size, and proximity of neighborhood open spaces. *American Journal of Public Health, 100*(9), 1752-1757.
- The Trust for Public Land. (2010). *2010 City Park Facts*. San Francisco, CA: The Trust for Public Land.
- U.S. Census. (2008). American Factfinder. Retrieved November 11, 2011, from http://factfinder.census.gov/home/saff/main.html?_lang=en
- van Lenthe, F., Brug, J., & Mackenbach, J. (2005). Neighbourhood inequalities in physical inactivity: The role of neighbourhood attractiveness, proximity to local facilities and safety in the Netherlands. *Social Science & Medicine, 60*, 763-775.
- Wolch, J., Jerrett, M., Reynolds, K., McConnell, R., Chang, R., Dahmann, N., et al. (2011). Childhood obesity and proximity to urban parks and recreational resources: A longitudinal cohort study. *Health & Place, 17*(1), 207-214.