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“PICTURE ME HEALTHY”: A PILOT STUDY USING PHOTOVOICE TO EXPLORE HEALTH PERCEPTIONS AMONG MIGRANT YOUTH IN BEIJING, CHINA

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Abstract

Globalization has resulted in an influx of migrant families from rural provinces into the urban areas of China. Although the migrant population may live in the same cities as urban residents, they experience different lives because of restricted access to job opportunities, social services, and schools for children. Limited research exists with Chinese rural-to-urban migrant youth, particularly using community-based approaches. This study explored migrant adolescents' perceptions of their environment and how it influences health, using the community-based participatory research method of photovoice. Twelve migrant youth (6 boys and 6 girls) in Beijing, China participated in two photovoice assignments focused on personal safety, nutrition, and physical activity. The photographs taken by the youth guided group discussions and semi-structured interviews. Inductive and deductive processes were used to identify codes (ideas emerging from text); similar codes were grouped into themes. Pedestrian safety was the most common personal safety concern. Another safety issue was the excess garbage in the community. Garbage was also a barrier to nutrition and physical activity as it was a food sanitation concern and limited the physical environments where children could play. Schools and community recreation centers were perceived as facilitators of physical activity. However, community centers were also a barrier as a limited number of centers caused overcrowding, resulting in safety concerns. Photovoice enabled youth to express their health perceptions. Our data provide interesting preliminary insight into the lives of Chinese migrant children, which could help inform the

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Underlying research materials, such as data, can be made available to all interested researchers upon request.

development of interventions and advocate for positive environmental changes for this marginalized population.

INTRODUCTION

Rapid industrialization and globalization in China has resulted in an influx of people from the rural provinces to the major cities over the last three decades. The country's growth has created such a demand for urban labor that an estimated 225.5 million people (~17% of China's population) have migrated into urban areas (1). Although migrants may live in the same cities as more affluent residents, many are segregated into *villages within cities*. They tend to live very different lives from their middle-class neighbors, with restricted access to job opportunities and social services (2), often finding employment in construction, recycling or small businesses within migrant residential areas (3).

During the initial migration process, it was the young adults predominantly moving; however, family migration has gradually become the norm as children are now accompanying their parents (4). Currently, about 21% of China's migrants are school-aged youth (5). Similar to their parents, the children have limited access to social services; thus, the majority are excluded from the public education system and seek enrollment in informal schools. These privately-run schools, usually located in migrant areas, are not recognized by local governments and often have poor teaching facilities and unqualified faculty (6).

The same economic changes that have inspired this urban migration have had a broader cultural impact, not least on eating habits. China's consumption patterns are shifting as Chinese children's diets now resemble that of American children's in the mid-1990's with increased consumption of energy-dense foods (7). The impact on public health has been widely documented (8–10). Furthermore, physical activity (PA) behaviors have shifted such that sedentary behaviors, particularly screen-related activities, have become more common among households across all socio-economic groups (11, 12). As a result, both adult and childhood obesity are on the rise, especially in urban areas (9, 10).

Studies have captured the public health transitions quantitatively (8, 13), while others have documented the shifts through qualitative methods (14, 15); however, to the best of our knowledge, only one other study has utilized the community-based participatory research (CBPR) method of photovoice to explore the personal experiences related to health of marginalized Chinese migrant youth (16).

Photovoice is a unique CBPR method that involves placing cameras into the hands of people so they may visually represent and communicate their experiences (17, 18). This collaborative partnership between researchers and community members often begins with a research question but aims to combine the knowledge and expertise of both groups to improve health outcomes and eliminate health disparities (19).

More effectively than words alone, the photos taken by the participants are used as the platform to promote reflection, critical thinking, and social awareness of the community environment through dialogue and discussion (17, 20). These perspectives provide

invaluable insight into the community as its physical and social environments play critical roles in influencing the health of its people (21).

Photovoice is a promising strategy for engaging people, particularly those from marginalized communities (22, 23), thus could be an innovative method to engage migrant youth in Beijing, China. The primary purpose of this pilot study was to explore migrant youths' perceptions of how their urban environment influences health, using the CBPR method of photovoice. Additionally, evaluation of the feasibility and acceptability of the photovoice process was conducted as it was intended to inform future CBPR collaborations with similar populations.

METHODS

recruitment

Youth from the Xinghua School for Migrant Children in Beijing, China were recruited for the study in Summer 2007. The school, comprising of an elementary and junior high school, was established in 1998 and had approximately 1,300 youth enrolled at the time of the study. Migrant youth were defined as individuals whose family worked in Beijing without official city resident status. Beijing, located in northern China, is the country's capital and one of the most populous cities in the world, with a population of approximately 20 million (24).

The recruitment process involved collaboration with a school coordinator to identify potential participants. Inclusionary criteria included male and female students who were 11 to 12 years old and resided in Beijing for one year or less. As preadolescence is one of the most rapid and dramatic social, physical, and emotional developmental stages (25), these youth could provide a unique and insightful perspective on health.

participants

The study sample comprised of 12 migrant youth (6 boys and 6 girls) with a mean age of 12.2 ± 0.3 years and resided in Beijing for an average of nine months (four to 12 months). Four were originally from the Henan province, located in central China, while three were from the Sichuan province in the southwest of China, which are approximately 450 and 1,100 miles away from Beijing, respectively. The other provinces from which youth came included Fujian, Hebei, Hubei, and Shanxi, which are in southeast, north and central China, respectively.

Parental consent and youth assent were obtained prior to study initiation. Upon intervention completion, participants received small gifts, comprising of basic household items (e.g., detergent, toothbrushes) valued at approximately \$2 USD. The study was approved by University of North Carolina and Tsinghua University Institutional Review Boards.

photovoice sessions

Five sessions and two photovoice assignments, which comprised of the youth taking photos of perceived positive and negative environmental influences related to health, were conducted over a five-week period, beginning July 2007. Each session, led by a research assistant (RA) fluent in Mandarin Chinese and overseen by the principal investigator (PI),

were held in the afternoon after regularly scheduled classes. Sessions were 75 to 90 minutes in duration. Process evaluation data, such as intervention delivery quality (intervention delivered as intended) and quantity (youth attendance), were collected throughout the project to assess study feasibility. Further details regarding the sessions and assignments follow below.

Session 1.—The RA briefly explained the study and its purpose to the participating youth. She also presented a short lesson on basic photography, ethics of taking pictures, and safety issues associated with photographing the environment.

Session 2.—This session began with the RA conducting a guided photo expedition around the school, to review the concepts taught in Session 1 and for the youth to explore and learn how to frame photos to convey thoughts and communicate ideas. Following this, a discussion about “health” was conducted, moderated by the RA. This broad discussion topic allowed youth to describe what “health” meant to them personally. During this discussion, the RA wrote participants’ comments on the blackboard. These comments served to define a more specific theme for assignment #1.

Based upon the documented responses, youth were asked to vote for which topic they believed to be the most important one related to health. The top four topics discussed by the youth were personal safety, nutrition and food, exercise, and personal hygiene habits, ranked by priority based upon the number of votes. As personal safety received the most votes, assignment #1 was *“What influences me to be healthy or unhealthy related to personal safety in my community?”* The youth were informed that the first 15 photos had to be related to the assignment, while the remaining photos could be based upon personal preferences and ones they were allowed to keep.

Disposable cameras were then distributed. Youth were given four to five days to complete the assignment. They were asked to return their cameras within that time period so the research team was allotted enough time to develop the photos, in preparation for the following session. Class leaders were selected to assist in reminding other youth about returning cameras in a timely manner.

Session 3.—At the beginning of the session, the youth were asked to review the photos they had taken and select one they felt best answered the assignment question. The RA then led a discussion where each youth took turns presenting their own photo and sharing thoughts about it. Following this, the youth selected two photos, from the ones initially presented, that they felt were most relevant to the session topic and wanted to discuss further. Youth were then divided into two groups of six for a more in-depth discussion around these two photos, using questions adapted from the SHOWeD technique (23), which is a series of questions that move a discussion from a personal level to action. Such questions included, Why did you take a photo of this?, What story does the photo tell us about personal safety and health?, How does this relate to our lives?, and What can we do about this situation?

As “nutrition and food” and “exercise” were the other two priority topics that emerged from the initial discussion of health, session three included a discussion about nutrition and PA and how these topics relate to “health”. This discussion guided the topic for photo assignment #2, which was “*What influences me to make healthy and unhealthy choices in my community food and PA environment?*” Disposable cameras were again distributed to the youth, who were given four to five days to complete the assignment.

Session 4.—Similar to the previous session, each youth selected a personal photo they wanted to share with the rest of the group. The youth then narrowed it down to two photos, which were further discussed in two smaller groups using questions adapted from the SHOWeD technique (23). Following this, the RA conducted a discussion to understand the feasibility and acceptability of the photovoice process from the youth’s perspective.

Session 5.—During session five, individual in-depth interviews were conducted with nine participants (4 females, 5 males). The youth, who were interviewed, were selected based upon meaningful and thoughtful statements they had mentioned during group discussions. These interviews provided an opportunity for the researchers to clarify or further explore those statements. Additionally, other youth were selected based upon photos they had taken during the assignments that were not selected during the previous discussion sessions, yet the researchers found to be of interest. Each interview lasted about 20 minutes. Similar to the focus group discussions, the interview questions were adapted from the SHOWeD technique (23). During the interviews, the other youth were engaged in creating personal scrapbooks with the project photos.

data analysis

Focus group discussions and in-depth interviews were audio taped. These audio files were transcribed verbatim into Chinese, then translated into English. The PI and an RA reviewed the transcripts for accuracy. A preliminary codebook was developed, guided by the literature related to migrant health and dietary and PA environmental influences. The codebook was reviewed by research team members to ensure standardized definitions of the codes. The PI and RA coded the transcripts using inductive and deductive processes to identify codes (ideas emerging from text). Reflexive iteration was used to identify additional codes (26). The two researchers compared their coding and resolved any discrepancies through discussion and consensus. Data reduction then occurred where similar codes were grouped together to identify relevant themes. Data analysis was conducted using thematic conceptual matrix sheets and code trees with Atlas.ti (Scientific Software, Berlin; version 5.2).

RESULTS

themes

The participating youth documented a broad spectrum of positive and negative environmental influences related to personal safety, nutrition, and PA. Findings are summarized across the three topics.

1) topic: personal safety—Pedestrian safety was the most common concern presented for the first assignment. While the youth mentioned that crossing roads could be unsafe at times as people could be *“hit by cars”*, their concerns also highlighted the role of personal responsibility. One 12-year old girl said, *“There is no pedestrian crossing and...no traffic light...(the person) is just jaywalking in the path of cars, right? (He is) where a person should not be walking.”*

Another personal safety concern was excess garbage. Many youth took pictures of garbage improperly disposed in locations such as rooftops and outside people’s homes and businesses. They were concerned about people injuring themselves as it often accumulates where people walk or socialize. For example, a 12-year old girl said, *“What if a child were to fall and knock himself...that is a safety (concern)... This is an electric water heater; it’s damaged, thrown over there. What if there is electricity...what if a child were to be electrocuted and injures himself?”*

2) topic: barriers and facilitators to nutrition—The main barrier to nutrition that emerged from the data was food safety-related issues. The most common concern was garbage-both improper disposal and limited number of areas to dispose of it (Figure 1). Other food safety-related themes were the poor food handling practices by vendors and youth themselves and car pollution. One 11-year old boy said, *“I took this photo because... this has an effect on physical health...cars often pass...and the exhaust of the cars falls. But there are people here, making their meals and selling fruits...my neighbor bought (fruit) here and their child got sick. He did not wash it...the owner did not wash it either, he plucked it directly from the (ground) and placed it there without washing it.”*

Many youth reported purchasing snacks from small food stores in their neighborhoods and near school. Their favorite snacks included popsicles, ice cream, and *‘la tiao* ‘(spicy snacks). The youth preferred to patronize certain stores because of their cleanliness. One male participant mentioned that the range of items of may be limited in these stores, but the foods offered are healthier than foods in larger supermarkets (Figure 2).

3) topic: barriers and facilitators to physical activity—Similar to the other topics, garbage was expressed as a PA barrier because it limited the environments where children could play. A 12-year old boy said, *“I often walk by this way...as it would not be possible to stay home every hour and every minute. I will walk and be frustrated everyday...the air is too bad to smell.”*

Schools were perceived as PA facilitators as they provide opportunities to run and play safely. Several youth commented about the school’s positive environment and fresh air. One boy (12-year old) said the school is *“a place with lush vegetation, you can inhale fresh air...It has plenty of oxygen.”*

Other opportunities for PA included community recreation areas and parks. Some sites had been recently built (in anticipation of the 2008 Summer Olympics), which not only provided additional opportunities for activity, but also created socialization areas for community members. An 11-year old boy said, *“There are many people who go there early in the*

morning. In the past...things were very chaotic...then all the filthy stuff was cleared up, and this exercise stadium was built..then there were people here at night. During the hot summer, people...like to come here to exercise. ”However, a couple of youth expressed that the limited number of recreation areas presented a PA barrier due to violence that could arise because of overcrowding. A 12-year old said, *“A lot of people come here to exercise. Some people have to go early...if you go late, you will not be able to play. If more...equipment could be built...we can all play. Some people because they do not get to play...often fight...and get injured.”*

The limited number of recreation centers also led some youth to search for other settings, which were often not safe; a male participant mentioned that he and his friends have played in areas that were formerly cesspits (open version of septic tanks).

feasibility and acceptability of the photovoice process

process evaluation: Overall, implementation of the photovoice study was successful. All sessions and their intended activities were completed. Additionally, all the youth completed both photovoice assignments. The sessions were originally designed to be 75 minutes in duration, but majority of the sessions (three out of five) took up to 90 minutes to complete. Aside from two youth who were not able to attend the first session, there was 100% attendance for the other four sessions.

focus group discussion: Overall, the youth enjoyed the process and their participation. The school principal also informed the research team that the youth enquired to him if they would be able to complete a similar project the following year. For many of the participants, this was the first time using a camera so several reported they learned about how to take proper pictures with cameras and photo-taking tips and techniques. One boy (12-year old) also mentioned that *“taking photos you need to have your own feelings.”*

Other participants expressed this project helped them become more aware of the positive and negative aspects of their community environment. It also provided the youth an opportunity to reflect on their own behaviors and how they may be able to improve them. A 12-year old boy said *“I learned in the process of taking my own photos...that as humans we have some bad practices, have polluted the natural environment. If we continue...in the future we will not be able to breathe fresh air, so in the future I will definitely not carelessly throw garbage.”* Another boy said *“Through photographing, we have gone to other areas and understand about the outside world... (it) has good and bad aspects.”*

DISCUSSION

This pilot study was conducted to explore migrant youths’ perceptions of the urban environment and health in Beijing, China. The first photovoice assignment focused on personal safety as voted by the youth. The main concern voiced by participants was the excess garbage in their communities. Similar concerns around garbage have been expressed by immigrants and youth in other countries as males and females from India, Nigeria, South Africa, and the U.S. have linked it to poor health and disease (16, 27). Another safety issue

that emerged from the study was pedestrian safety. Interestingly, the youths' comments predominantly focused on such safety being a personal responsibility.

They mentioned that the people in the photos (whether it was an adult or child) were crossing the road either at the wrong time or at inappropriate locations. While this may highlight a cultural norm that values personal responsibility, previous research with youth from other countries found similar results related to personal responsibility and safety (28, 29).

Excess garbage was also highlighted as a nutrition barrier, specifically as a food safety concern. Other food safety concerns included poor food handling practices of food vendors. The improper handling of food seemed to discourage the youth from patronizing certain vendors. Car pollution was also a barrier as the particulate matters settle on food, which has been a major environmental concern for Beijing and other Chinese cities (30). Initiatives have been implemented to alleviate the pollution such as limiting car ownership through lottery systems (31), but it continues to be a major environmental problem for this expanding industrialized country.

Unlike other disadvantaged neighborhoods in countries such as the U.S. (32), the availability and accessibility of fresh produce did not appear to be a major nutrition concern for the migrant youth. Additionally, the local food stores in the migrant areas of Beijing (comparable to the convenience stores and bodegas in the U.S., which tend to offer predominantly high-energy dense foods) offered healthier options, according to the youth. However, many did report they often purchased popsicles and ice cream in those stores. This may highlight a gap in health knowledge and suggest that nutrition education could be promoted amongst the Chinese migrant population. It should be noted, however, that the data for the current study were collected in the summer time; thus snack choices and their nutrient content may have differed in the other seasons.

Another topic of focus was the barriers and facilitators related to PA. The youth expressed that opportunities to be physically active were limited and that overcrowding has led to arguments and violence. Other mentioned that they search for other areas to play, which may pose a safety hazard. Disadvantaged youth residing in other countries have expressed similar experiences. Mmari et al (16) found that adolescents from Baltimore, Johannesburg, and to some extent Shanghai, reported a lack of recreational spaces and overcrowding, while a study conducted in Malaysia (27) highlighted that a single football field was available to the youth; thus, many of them resorted to playing on roads.

While childhood obesity is a major concern for certain urban populations in China (9), aside from one boy who mentioned that "junk food" available in the supermarkets made people fat, the youth in the current study did not express any obesity-related concerns. However, the influx of westernized food products, expansion of fast food establishments, and decline in activity behaviors over the last several years (33) may have resulted in increased obesity risk for lower-income migrant populations as recent research has shown that the epidemic is on the rise in certain low-income areas of China (34).

While other topics and themes may have emerged if the study had been conducted more recently, such as further concerns related to obesity and chronic diseases, it should be acknowledged that while our data were collected in 2007, the concerns expressed by our participants regarding garbage and the associated personal and food safety consequences are still likely to be relevant. Recent research with youth from disadvantaged neighborhoods in Chinese and Malaysian cities reported similar findings (16, 27). Furthermore, the literature suggests that the political and social experiences of migrants in China continue to marginalize them and limit their access to social services and job opportunities (35, 36).

The photovoice method provides the opportunity for participants to reflect on their thoughts and behaviors and to learn something about themselves, their peers, and their community. This was reflected in the current study as many of the youth reported viewing the environmental landscape differently after participation in the project and some of them intended to change their behaviors for the betterment of the community. Therefore, while photovoice was originally designed to better understand community issues and advocate for change, the method may hold promise to also be used as an intervention approach for youth to identify and promote modifiable behaviors.

limitations

Several limitations should be noted for this pilot study. The study was conducted during the summer season, therefore, the youth were not able to document various health issues that may have been unique to other seasons. Furthermore, similar to other studies, the small sample size limits its generalizability, as the data are unique to migrant youth in Beijing, China. The research team experienced camera problems during the first assignment as a portion of the film was defective. About 65% of the photos taken were printable, thus limiting the data for assignment one. The investigators chose to use basic disposable cameras for the pilot study to minimize participant burden as some of the youth had never used a camera prior to this study. However, future studies should incorporate more technology, such as digital cameras and photos, to minimize such risks as defective film and improve efficiency of study implementation and logistics. Lastly, the boys tended to dominate the discussions. To address this imbalance, seating arrangements were altered for the last three sessions to encourage further conversation from the girls. While this improved participation to some extent, overall the boys provided more input throughout the study. Thus, future research studies should consider separating the genders for the focus group discussions. Future photovoice studies should also consider exploring the differences of the perceived experiences of legal urban youth to migrant youth because of the disparities related to welfare systems, income, and school access.

conclusion

Photovoice enabled youth to express their perceptions about their community's conditions that influence their health and behaviors and engaged them to identify opportunities to promote positive change either at the individual or community-level. To the best of our knowledge, this is the first photovoice study to have been conducted with migrant youth in Beijing, China and provides interesting insight into the lives of this marginalized population.

These data could be used to reach key community stakeholders to increase awareness, inform the development of tailored interventions, and advocate for positive environmental changes within their communities.

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Figure 1.

There's a lot of garbage so there are a lot of bad smells. The bad smell...attracts flies. Flies can fly into people's houses...and are dirty. If people are eating, it will have a big effect.
(12-year old boy)

Figure 2.

Although this store may look small...the owner specifically looks for what is particularly good...the food is really cheap and substantial; it's healthy too. The very big, luxurious supermarkets...the things inside are all junk food, some of the food makes us fat...things that aren't good for our bodies. (11-year old boy)