

## Short Communication

# Food ordering for children in restaurants: multiple sources of influence on decision making

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Submitted 27 August 2015; Final revision received 15 April 2016; Accepted 4 May 2016; First published online 23 June 2016

### Abstract

**Objective:** Restaurants are playing an increasingly important role in children's dietary intake. Interventions to promote healthy ordering in restaurants have primarily targeted adults. Much remains unknown about how to influence ordering for and by children. Using an ecological lens, the present study sought to identify sources of influence on ordering behaviour for and by children in restaurants.

**Design:** A mixed-methods study was conducted using unobtrusive observations of dining parties with children and post-order interviews. Observational data included: child's gender, person ordering for the child and server interactions with the dining party. Interview data included: child's age, restaurant visit frequency, timing of child's decision making, and factors influencing decision making.

**Setting:** Ten independent, table-service restaurants in San Diego, CA, USA participated.

**Subjects:** Complete observational and interview data were obtained from 102 dining parties with 150 children (aged 3–14 years).

**Results:** Taste preferences, family influences and menus impacted ordering. However, most children knew what they intended to order before arriving at the restaurant, especially if they dined there at least monthly. Furthermore, about one-third of children shared their meals with others and all shared meals were ordered from adult (*v.* children's) menus. Parents placed most orders, although parental involvement in ordering was less frequent with older children. Servers interacted frequently with children but generally did not recommend menu items or prompt use of the children's menu.

**Conclusions:** Interventions to promote healthy ordering should consider the multiple sources of influence that are operating when ordering for and by children in restaurants.

### Keywords

Children's menu  
Parents  
Children

Restaurant food ordering  
Restaurants  
Unobtrusive observations

Excess energy intake is a risk factor for obesity<sup>(1)</sup>. The restaurant industry plays a central role in dietary intake as consumers eat out more than ever before<sup>(2–4)</sup>. Spending on away-from-home foods has risen to a level near that of food-for-home spending<sup>(2)</sup>, with implications for children's dietary intake. Although studies have shown that many restaurants have at least one healthful children's meal<sup>(5)</sup> and one children's fruit and vegetable side option<sup>(6)</sup>, children's menu items lack consistency in meeting the US Department of Agriculture dietary guidelines<sup>(5–7)</sup>.

For example, 91% of children's meals at the top fifty restaurant chains did not meet the National Restaurant Association's Kids LiveWell Program nutrition standards and 50% of children's meals did not meet the Kids LiveWell Program's criterion of 2510 kJ (600 kcal) or less<sup>(8,9)</sup>. Thus, the potential to improve what is offered to children in restaurants is great.

Prior restaurant-based interventions in the USA and worldwide have focused on menu labelling efforts<sup>(10–14)</sup>, modifications to menu items<sup>(15–18)</sup>, promotional campaigns,

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including restaurant staff prompts<sup>(19)</sup>, and chef trainings<sup>(20–22)</sup>. Among child-focused studies, important factors include offering healthy default side dishes (e.g. fruits/vegetables), providing multiple healthy choices and considering the appearance of the food<sup>(5,6,23–26)</sup>. Few studies, however, have considered intrapersonal (i.e. child cognitive developmental stage), interpersonal/social environment (i.e. parents, servers) and restaurant/physical environment (i.e. menu) influences on ordering for and by children. Social Cognitive Theory<sup>(27)</sup> and the Socio-Ecological Framework<sup>(28)</sup> support this focus, as they acknowledge the reciprocal influence of aspects of the person, the behaviour of interest, and the social and physical environments in which behaviours are enacted.

The role of children as consumers and their ability to influence decisions is related to their cognitive developmental stage<sup>(29,30)</sup>. As children develop cognitively, they are more capable of processing information and making choices<sup>(31)</sup>. As such, we hypothesized that parents would be more involved in ordering for younger children than for older children. Relatedly, while parents are an important source of influence and accurately predict what their children will eat<sup>(32)</sup>, less is known about the influence of other family members and servers<sup>(19)</sup> and of the restaurant environment<sup>(33,34)</sup>. Thus, to inform actionable steps towards improving what is ordered for and by children in restaurants, the present study identified sources of influence on ordering decisions.

## Methods

### *Study design*

The current paper reports on a mixed-methods observational study to understand restaurant-ordering behaviour for and by children. It represents the formative research study of the Kids' Choice Restaurant Program, a cluster randomized controlled trial designed to test the introduction of healthy children's menu items in eight pair-matched independent restaurants<sup>(35)</sup>. Outcome and impact evaluation activities will determine whether the intervention results in sales of healthy children's menu items through changes in ordering. In the present study, dining parties were observed unobtrusively while ordering. Interviews were conducted both after orders were placed and after meals were consumed (the latter not reported here). San Diego State University's Institutional Review Board approved all study procedures.

### *Setting and restaurant recruitment*

Eligible restaurants met the following criteria: (i) categorized as independent; (ii) prepared the majority of food in-house; (iii) provided table service; (iv) offered dinner at least five nights/week; (v) imposed no age restrictions (e.g. over 21 only); (vi) 33% of dinner parties/week included children; and (vii) provided high chairs/booster seats. Using the San Diego County Department of Environmental Health

food-service permit holders list (February 2014), a list of 1589 potential outlets was compiled after removing clearly ineligible outlets (e.g. food stores, gas stations, chain and fast-food outlets) and restaurants located in zip codes with less than 29% Latino population and further than 16 km (10 miles) from project offices. Eligibility was verified using online sources and/or telephone calls. Next, study staff visited eligible restaurants with recruitment flyers. They approached the managers/owners to discuss study requirements, which included allowing research staff to shadow interactions between servers and customers and interview parent and child customers. Study incentives included a Certificate of Appreciation and positive Yelp review for the restaurant, \$US 10 server compensation for each shift observed and two pre-paid \$US 5 restaurant vouchers for participating dining parties.

Of forty-nine potentially eligible restaurants identified, twenty-seven were actively recruited and thirteen consented to participate. Three restaurants were dropped due to lack of observations and ten participated in the study.

### *Procedures and data collection*

Restaurant audits assessed characteristics of the ten participating restaurants at the beginning of the study. Two study staff members (observer and interviewer) were deployed to each restaurant on days and times the restaurant indicated dining parties with children would be present. The observer and interviewer interacted at the restaurant only via text message to identify participating dining parties; they did not interact with each other in front of customers.

### *Observational component*

The observational protocol was developed for the present study based on other protocols implemented in grocery stores<sup>(36)</sup>, schools<sup>(37)</sup> and communities<sup>(38)</sup>. Two important characteristics of observed data were employed: (i) we limited the number of coded answer choices; and (ii) we did not ask observers to make attributions for behaviours. Prior to the study, the protocol was refined during study staff training and tested with twenty-two dining parties at three pilot restaurants (different from the restaurants recruited into the study).

Dining parties of two to six people with at least one child aged 3–14 years and one adult aged 18+ years were targeted for observation. The observer accompanied a server to tables with children as he/she went about normal activities. To minimize bias, the observer was simply identified as shadowing the server. A structured observation instrument with a primarily closed-ended coding scheme was used. Variables recorded during the observation included: child's gender, who ordered for the child and server interactions with the dining party. The observer joined the server for each table interaction until every customer at the table received his/her order, at which point the observation ended. Observations were not conducted on days when children ate for free, as this could influence ordering behaviour.

### Interview components

Once the interviewer received a text message from the observer, he/she approached the observed dining party. The interviewer obtained verbal consent by handing an informational flyer to one of the adults and reading an approved recruitment script. Eligible and consenting dining parties were interviewed post-order. For each child at the table, the interviewer asked who ordered for the child. If the child ordered, he/she was asked to answer a few questions. If the child chose not to answer, an adult was asked the questions. If an adult ordered for the child, he/she was asked the questions.

A series of closed-ended questions was asked: restaurant visit frequency, child's age, whether or not the child knew what to order when he/she arrived at the restaurant, and if so, if that was ordered, menu ordered from and whether the child shared the item ordered (captured only if the respondent volunteered that the child was sharing and with whom). Respondents who indicated they did not know what they were going to order before arriving, or those who knew what they were going to order but ordered something else, were asked how they decided what to order (open-ended). The open-ended responses were grouped thematically consistent with the Socio-Ecological Framework<sup>(28)</sup> by two study co-authors: intrapersonal, interpersonal/social environment, restaurant/physical environment or multiple influences.

Respondents who knew what they wanted before arriving and ordered as planned were asked what might have persuaded them to try a new children's menu item instead (open-ended; grouped thematically using a similar approach). Then, they were given a list of items that may influence whether they would try a new children's menu item and asked to select all of the responses that applied. The list contained response options related to sources at each level of influence: intrapersonal (i.e. ability to taste items), interpersonal/social environment (i.e. server suggestions) and restaurant/physical environment (e.g. menu items, descriptions and pictures, nutritional information, price/value and marketing materials). When the dining party finished eating, the interviewer approached the table for a post-meal interview (results not reported here) and, upon completion of the interview, provided the table with two \$US 5 restaurant vouchers.

### Statistical analyses

Data were entered and analysed using the statistical software package IBM SPSS Statistics Version 23.0. Children were placed into one of three cognitive developmental stages based on age<sup>(30,31)</sup>: 3–6 years old (45.3%), 7–11 years old (43.3%) and 12–14 years old (11.3%). Descriptive statistics, cross-tabulations and  $\chi^2$  tests identified sources of influence on ordering behaviours for and by children in restaurants.

## Results

### Restaurants and dining parties

Data were collected at ten full-service restaurants between November 2014 and February 2015. Restaurants ranged in size from twenty to forty-six tables and included the following cuisines: American, Italian, Latin and Mediterranean. None of the restaurants had nutritional information available and half had a children's menu.

Of 138 dining parties with children seated during observations, 120 (87%) were observed. Of the observed dining parties, 102 (85%) completed the post-order interview. Therefore, observational data for 102 dining parties, ranging in size from two to six individuals (mean = 4) with one to three children (mean = 1.5), were used. Complete interview data were obtained from/for 150 children aged 3–14 years (mean age = 7 years; 51% girls).

### Sources of influence on ordering behaviour

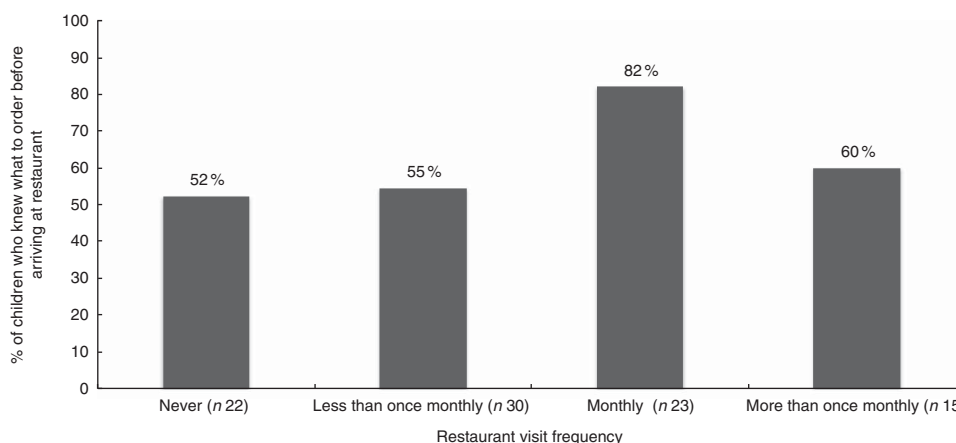
Most children (60%) knew what they wanted to order when they arrived at the restaurant and 92% ordered as planned (Table 1). Children who visited the restaurant monthly were more likely to know what they intended to order before arriving at the restaurant compared with those who visited less frequently (Fig. 1). Parents placed most food orders (62%) and parental involvement in ordering for children decreased with child age ( $\chi^2 = 20.17$ ,  $P < 0.001$ ; Fig. 2). Children shared their meal 34% of the time, most often with other children (Table 1). One hundred per cent of those who shared ordered from an adult (*v.* children's) menu compared with 69% of those who did not share ( $\chi^2 = 19.55$ ,  $P < 0.001$ ).

**Table 1** Food ordering behaviour for and by children in restaurants; observational and interview data obtained from 102 dining parties with 150 children (aged 3–14 years) dining at ten independent, table-service restaurants in San Diego, CA, USA, November 2014–February 2015

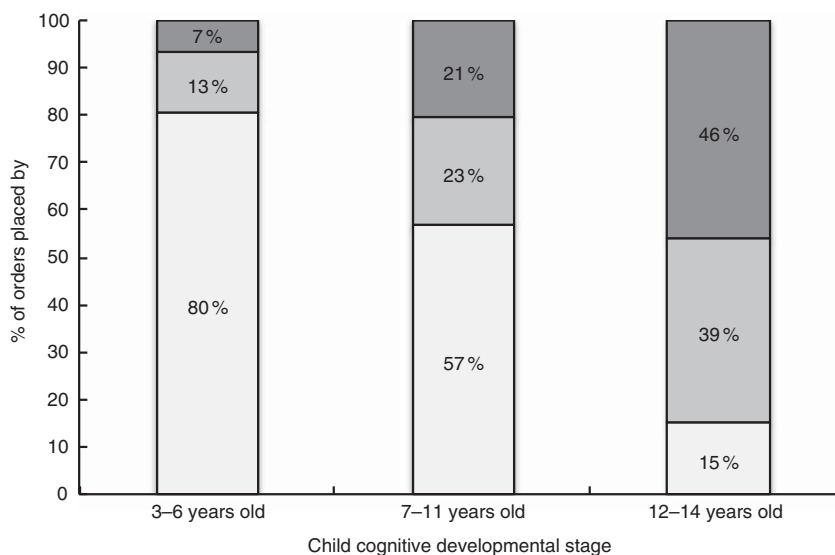
	%	<i>n</i>
<b>Dining party data (<i>n</i><sub>dining parties</sub> 102)</b>		
Dining party restaurant visit frequency		
Never	25	25
Less than once monthly	38	39
Monthly	19	19
More than once monthly	19	19
<b>Child data (<i>n</i><sub>children</sub> 150)</b>		
Child knew what he/she intended to order before arriving	60	90
Ordered as planned	92	83
Who ordered for the child*		
Parent	62	64
Child	18	18
Both	20	21
Shared food with someone else†		
No	66	98
Yes	34	51
Shared with adult(s)	26	13
Shared with child(ren)	41	21
Shared with family	33	17

\**n* 103; six missing cases, forty-one children did not order food (including children that another person shared with).

†*n* 149; one missing case.



**Fig. 1** Percentage of children who knew what they intended to order before arriving at the restaurant by restaurant visit frequency; interview data obtained from 102 dining parties with 150 children (aged 3–14 years) dining at ten independent, table-service restaurants in San Diego, CA, USA, November 2014–February 2015. Never v. monthly:  $\chi^2=6.48$ ,  $P=0.011$ ; less than once monthly v. monthly:  $\chi^2=6.12$ ,  $P=0.013$ ; more than once monthly v. monthly:  $\chi^2=3.19$ ,  $P=0.074$ . The Bonferroni correction was done and the critical  $P$  value used for these tests was  $\sim 0.02$



**Fig. 2** Who placed the order (■, child; ▒, both parent and child; □, parent) by child cognitive developmental stage; observational and interview data obtained from 102 dining parties with 150 children (aged 3–14 years) dining at ten independent, table-service restaurants in San Diego, CA, USA, November 2014–February 2015

Servers interacted with children in 53% of dining parties (e.g. directly speaking with the child). In most cases, servers did not prompt child menu usage or choices (73%) or make food or beverage recommendations (80%). Not surprisingly, they did not engage in dietary/nutritional health talk (97%).

When asked how they decided what to order, 13% of respondents stated intrapersonal sources of influence (e.g. past experience, taste preference, dietary needs), 33% stated interpersonal/social environment sources (e.g. family, parent, server), 33% stated restaurant/physical environment sources (e.g. menu) and 21% stated two sources of influence (i.e. intrapersonal and restaurant/physical environment; intrapersonal and interpersonal/social environment).

When asked what would encourage them to try new children’s menu items, 57% of responses related to menu items and design. Availability of specific foods and health-related requests (i.e. healthier alternatives, vegetarian options, fruits/vegetables) were the most common. Modified portion sizes (11%), taste (8%) and price and promotion (6%) were also reported. The rest (8%) would not change their order or did not know (10%). When asked to select all items on a list that could influence whether they would try a new children’s menu item, children’s menu pictures (44%), children’s menu descriptions (25%), server suggestions (22%), nutritional information (19%) and price/value (15%) were selected. The remaining options were selected by less than 15% of respondents.

## Discussion

Interventions to modify what is ordered for and by children in restaurants are needed given the impact of away-from-home foods on obesity risk<sup>(1,3,7,8)</sup>. Research suggests that targeting restaurant menu changes is a potentially relevant environmental strategy for improving dietary intake<sup>(6,23)</sup>. However, improving what is offered on a menu without a better understanding of what influences ordering may have limited impact. Thus, the present study used a mixed-methods approach (observations and interviews) with children and accompanying adults to identify sources of influence on what is ordered for and by children in restaurants. The rigorous methods used minimized social desirability bias compared with studies relying solely on self-report. Findings identified intra-personal influences such as food/taste preferences, inter-personal/social environment influences such as other dining party members and restaurant/physical environment influences such as features of the menu that influenced ordering.

The innovative nature of studying restaurant-ordering behaviour addresses an important gap in the literature on away-from-home food consumption. Prior studies have used environmental strategies within restaurants to improve dietary intake<sup>(6,23,33,34)</sup>. However, our results suggest that efforts to influence what is ordered for and by children in restaurants may need to begin before the dining party arrives at the restaurant. Focusing solely on factors within the restaurant environment may be too late to impact these decisions. Furthermore, as indicated by the relationship between child age and independence in ordering, healthy children's menu interventions may benefit from strategies that target parents and children equally. Finally, while ordering decisions can be influenced by server suggestions<sup>(19,22)</sup>, the present study highlights the untapped potential for servers to promote healthy ordering specifically to children.

Given the sparse literature on ordering for and by children in restaurants, future research should explore the complexities of the ordering process and how parent feeding styles, for example, are associated with ordering behaviour. Additionally, a better understanding of the family decision-making process that occurs prior to arrival at the restaurant, and at the restaurant related to meal sharing, is needed. Future collaborations between restaurants and public health have the potential to improve children's dietary intake.

## Acknowledgements

*Acknowledgements:* The authors wish to thank Shih-Fan Lin, project staff and all participating restaurants. *Financial support:* This work was supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD; G.X.A., grant number

R21HD071324; I.A.C., grant number R21HD071324-S1). NICHD had no role in the design, analysis or writing of this article. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. *Conflict of interest:* None. *Authorship:* G.X.A. is the principal investigator of the study and secured the funding from NICHD. G.X.A., I.A.C., H.M., J.L.P., H.J.J., M.Z., S.G. and C.B.W. had input into study design and methods. J.L.P. was responsible for implementing the study, including restaurant recruitment and supervising data collection. All authors had input related to the interpretation of the results and contributed to writing this paper. *Ethics of human subject participation:* This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving human subjects were approved by the Institutional Review Board at San Diego State University. Verbal informed consent was obtained from all subjects. Verbal consent was witnessed and formally recorded.

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