

Using Theory of Planned Behavior to Understand the Prevalence of Formula Feeding among Chinese Community in New York City

Adele Lee PhD, RDN & Isobel Contento, PhD, CDN

Department of Health and Behavior Studies, Program in Nutrition, Teachers College Columbia University, New York, NY

Abstract

Background: As the fastest growing Asian subgroup and with the largest Chinese community outside of Asia, studies that focus on their health choices in the U.S. are long overdue. Where studies are available, the overseas Chinese population is often regarded as high formula feeding and low breastfeeding. This is the first study to systematically identify the psychosocial variables within Theory of Planned Behavior (TPB) that correlate to using infant formula and recommending it to others in relation to why this community continues to accept formula feeding (FF) as the norm.

Methods: Guided by Theory of Planned Behavior, this study incorporated both quantitative and qualitative components. A total of 434 surveys and 20 in-person interviews were collected in Chinese populated areas in New York City.

Results: Less acculturated, educated, and China-born subgroups were likely to conform to the idea that breast milk supplemented by infant formula is necessary in order to meet the nutritional demand of a growing infant. For the second generation, who are more acculturated and educated, although they are aware of the benefits of breastfeeding and intend to breastfeed, they are expected by the older generation to continue the formula feeding tradition in the family.

Conclusions: The current study identified the psychosocial variables that motivated individual subgroups and the underlying context and confirmed the influence of family and friends on formula feeding (FF) which was consistent in the traditions and values and expectations upheld by the Chinese culture. The interview findings helped connect the conceptual bridges between the TPB variables by offering a more detailed descriptions and explanations that were directly drawn from the sampled community (Figure 1).

Methods

- Approved by the Teachers College IRB
- Eligibilities: 18 years or older; lives or works in 1 of the 5 boroughs of NYC; and Chinese decedent
- Survey validated through test-retest & Cronbach's alpha
- Surveys (n=434) and interviews (n=20) were conducted between June 8 and October 16 of 2018
- No incentive was provided for participation
- SPSS and QSR NVivo 9 were used for data analysis
- Multiple & Logistic regression analyses

Understanding the TPB Constructs Scales of FF

- Beliefs & Attitudes – ↑ score = more positive towards FF
- Descriptive norms – ↑ score = perceived FF as more popular
- Injunctive norms – ↑ score = greater expectant to FF
- Perceived difficulty – ↑ score = perceived FF more difficult
- Perceived behavioral control – ↑ score = more likely to believe that parent, not grandparents, should make decision of infant feeding
- Behavioral intention – ↑ score = more intended to FF

RQ: Which of the TPB constructs correlate to the behavioral intention of using or recommending formula?

TPB Constructs	Place of birth [†]			Education ^{**}				Acculturation ^{***}			Relationship to a child ^{****}	
	U.S. born (n=81)	China born (n=175)	Another (n=73)	HS or less (n=113)	Some college (n=47)	Bachelor (n=112)	Grad/Pro (n=55)	Low accul (n=107)	Medium accul (n=87)	Highly accul (n=135)	Parents (n=177)	Non-parents (n=137)
1. Beliefs	.86***	.29***	.54***	.28*	.54***	.61***	.55***	.20	.49***	.72***	.39***	.60***
2. Descriptive norms	-.25	.11	.09	-.02	-.02	.03	.000	.10	.08	-.07	-.03	.11
3. Injunctive norms	.01	.37***	.14	.36***	-.12	.11	.15	.35**	.22**	.05	.27***	.07
4. Perceived difficulty	.07	.07	-.10	.10	-.10	.11	-.07	.18*	-.13	.05	.12	.003
5. Behavioral control	-.26*	-.21**	-.06	-.10	-.37**	-.14	-.28*	-.15	-.16*	-.23**	-.23***	-.21***

Note 1: β -coefficients reported
 Note 2: * $p < .05$; ** $p < .01$; *** $p < .001$
 Note 3: IV – 5 TPB constructs; DV – Behavioral intention
 Note 4: Demographic's controlled for: age, gender, acculturation, and education
 Note 5: Demographic's controlled for: age, gender, acculturation, and place of birth
 Note 6: Demographic's controlled for: age, gender, place of birth, and education
 Note 7: Demographic's controlled for: age, gender, acculturation, place of birth, and education

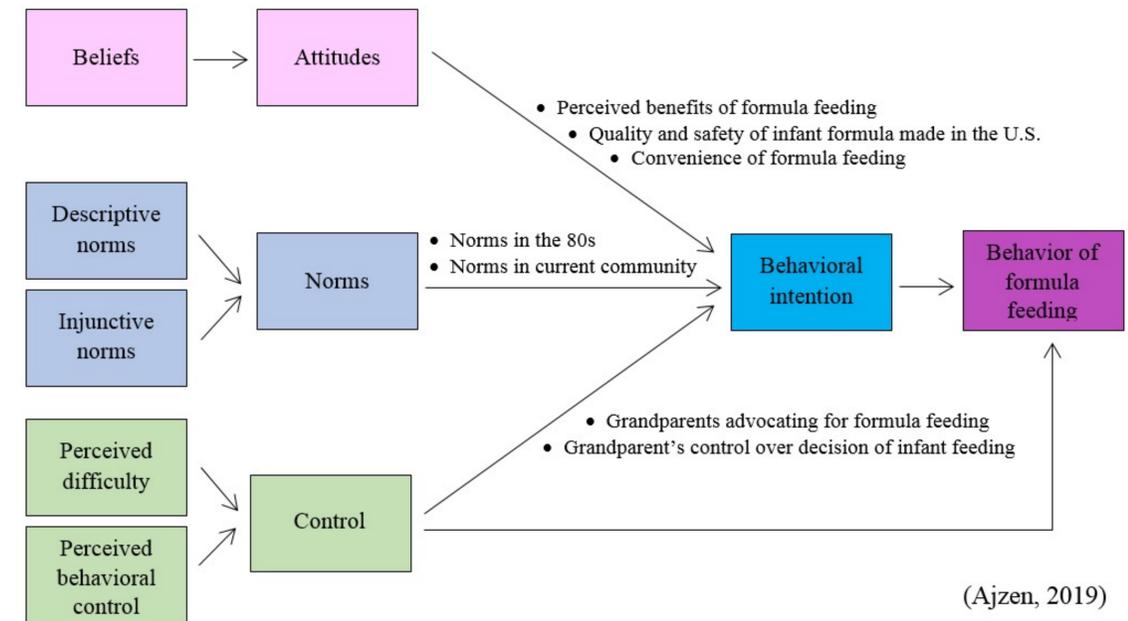
Results

- "I think the nutrition in formula is better... because the baby can grow faster."
31-year-old mother; some college credits/asso. deg.; low acc: 1.2
- Babies who are on formula have glowing white skin... they should be glowing, white and chubby. Babies are cute when they are chubby... not all breastfed babies are healthy. It depends on the mom's physical health. Breast milk is not always better."
31-year-old mother; some college credits/asso. deg.; low acc: 1.2
- "I think the majority of them use formula."
29-year-old mother; high school diploma; low acculturation: 1.0
- "All of them use formula. No one breastfeed... Their kids are healthy. Their kids are all soft, plump, and chubby... of course you would trust them"
33-year-old mother; less than a high school diploma, low acculturation: 1.2
- "There was no real evidence. It was just more like a 'this is what we did. We grew up with formula. Your mom took formula. We gave you formula.' ... They didn't believe in breast milk. I don't think breast milk was like a really... maybe not an option for them?"
"I think it was important to make them feel like they have it under control but it's hard raising a child under Chinese tradition and stuff because there is so much they disagree with..."
28-year-old mother; some college credits or an associate degree, high acculturation: 3.4

Survey demographics (n=434)

Language of survey		Household income	
Chinese	63.3%	< 25k	27.2%
English	36.7%	25-35k	5.0%
Gender		35-50k	17.7%
Female	73.6%	50-75k	13.8%
Male	25.6%	75-100k	16.0%
Place of birth		100-150k	7.3%
China	54.2%	150-200k	3.9%
U.S.	22.9%	> 200k	9.0%
Another	22.8%	Education	
Marital status		Less than HS diploma	10.9%
Married	62.0%	HS diploma	26.2%
Never married	33.6%	Some college credits	14.9%
Relation to child		Bachelor	32.4%
Parent	55.7%	Graduate/Professional degree	15.6%
Grandparent	3.8%	Age	
Neither	40.4%	Mean	Median
Parents and grandparents (n=185)		38	34
Ever fed formula to a child	85.4%	Range	
Never fed formula to a child	14.6%	18-81	
Acculturation level (Score: 1-5)		2.47	2.5
		1.0-4.6	

Figure 1. Construct map of TPB adapted from Ajzen (2019) with both survey and interview findings from the current study.



Conclusions & Implications

This community's view towards formula feeding may be shaped by several factors including the historical concerns about the starvation and deprivation experienced in China, the consistent exposure to infant formula marketing, and the expectation to carry on the family tradition of formula feeding passed down from earlier generations.

While both the rates of breastfeeding initiation and duration have much improved in the Chinese community attributed to the prenatal classes offered in the community health clinics, more support is still needed to shift the current dialog away from the prevalence of formula feeding where the recommendation of others is highly valued while continue to correct the overrated benefits of infant formula that satisfy the mentality of an earlier generation whose experience were informed by deprivation.

References

- Ajzen, I. (2002). Constructing a TPB Questionnaire: Conceptual and Methodological Considerations.
- Ajzen, I. (2019). Behavioral Interventions Based on the Theory of Planned Behavior. Encyclopedia of Health and Behavior, 1-5. doi:10.4135/9781412952576.n208
- Donaldson, H., Kratzer, J., Okutoro-Ketter, S., & Tung, P. (2010). Breastfeeding Among Chinese Immigrants in the United States. Journal of Midwifery & Womens Health, 55(3), 277-281. doi:10.1016/j.jmwh.2010.02.010.
- Lee, A., & Brann, L. (2015). Influence of Cultural Beliefs on Infant Feeding, Postpartum and Childcare Practices among Chinese-American Mothers in New York City. Journal of Community Health, 40(3), 476-483. doi:10.1007/s10900-014-9959-y.