SOLO DINERS' MOTIVES, PREFERENCES, AND BEHAVIORAL INTENTIONS IN RESTAURANT DINING

by

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To my beloved grandmother, Mrs. Yisoon Yang, and my parents, Mr. Her and Mrs. Kim,
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ABSTRACT

Driven by a growth of single-person households and individualized lifestyles, solo dining in restaurants is an increasingly recognizable trend. However, little is known about solo diners' motives and preferences in on- and off-premises restaurant dining and the subsequent behavioral intentions. In order to enhance the understanding of solo diners' motives, preferences, and behavioral intentions in restaurant dining, this dissertation proposed and completed three studies related to solo (vs. group) diners' menu-decision making process, solo (vs. group) diners' service mode-decision making process, and a restaurant scale development for solo diner friendliness. Specifically, Study 1 examined the effect of dining social context (solo vs. group) on healthy or indulgent menu item decisions using self-control dilemmas and temporal construal theory as a theoretical framework. Findings revealed that solo diners showed less preferences for indulgent menu items because of a more utilitarian (i.e., less hedonic) consumption orientation than group diners, and that solo diners showed more preferences for healthy menu items than group diners when the menu included nutrition information such as calories, fat, and sodium. Study 2 examined the effect of dining social context (solo vs. group) on off-site over on-site dining intentions based on three mediators and the moderating role of self-determination using the self-determination theory. Findings revealed that, in the self-determined condition, solo diners showed more preferences for off-premises dining than group diners via greater convenience-seeking and polychronicity-seeking tendencies and lower anticipated enjoyment of on-premises dining. In the context-determined condition, solo diners showed more preferences for off-premises dining than group diners only via polychronicity-seeking and anticipated enjoyment of on-premises dining, and the effects were smaller. Lastly, Study 3 developed and validated a Solo Diner Friendliness (SoDF) scale that measured restaurant menu and service dimensions important for solo diners' enjoyment as well as restaurant revisit intentions. The SoDF scale provided nine items under three factors, namely, *Inconspicuousness*, *Proper Service*, and *Healthy Menu Items*, that are valid and reliable measurements for future research and restaurant operators. Altogether, this dissertation offered theoretical and practical implications regarding how solo diners differed from group diners on various motivational and behavioral perspectives in on- and off-premises restaurant dining.

CHAPTER 1. INTRODUCTION

This dissertation follows a non-traditional, article-based format. Accordingly, Chapter one includes an overall introduction to this dissertation and research objectives for three studies. Chapter two includes an overall literature review, research hypotheses for three studies, and a research framework for the dissertation. Chapters three, four, and five each contains a research article for journal submissions. Finally, chapter six covers overall findings from three studies, theoretical and practical implications, and conclusions. A list of references used for each chapter is provided at the end of each chapter.

1.1. Research Background

Solo dining is an increasing worldwide phenomenon. One of the major reasons is a rapid growth in the number of small-sized households (i.e., one- or two-person) in the developed countries due to longer life expectancies, delayed or no marriages, an increasing divorce rate, and individualized lifestyles (OECD International Futures Programme, 2011). In European countries such as Sweden, Germany, and Finland, the proportion already exceeds 40% (Bouhlel, Mzoughi, & Chaieb, 2011; Donthu & Gilliland, 2002; Eurostat, 2017, 2019; OECD International Futures Programme, 2011). From 1996 to 2006, the number of singles increased 33% across the world (Klineberg, 2013). By nature, it is difficult for this demographic to prepare meals only for themselves and find dining partners for everyday meal occasions and thus, one-person households are strongly associated with more frequent solo dining in general, and more specifically, in restaurants (Halperin, 2015; Takeda, 2016, 2017). In addition, others likely to dine alone include solo business travelers, as well as quiet time for those who actively enjoy solitude. Solo dining can also be more convenient for dual-career couples with little spare time to prepare meals at home or who face schedule conflicts with spouses/partners, and for workers with a tight meal breaks that do not match their colleagues, or who face prolonged office hours outside of the home (Ratner & Hamilton, 2015; Sobal & Nelson, 2003; Takeda, 2016, 2017). Reflecting this trend, the stigmas and taboos attached to solo dining in public are less compared to the past. For example, eight out of ten respondents in the 2018 consumer food and drink report perceived that solo dining is more acceptable now compared to five years ago (Cloake, 2019).

Considering the increase in both voluntary and involuntary solo dining, solo diners can be a promising growth market for those restaurants and foodservice establishments interested in the additional sales and profits from them. Especially, competition for capturing the solo diner market has already occurred as a result of a number of retail alternatives, including supermarket meal kits, grab-and-go items, and ready-to-cook and ready-to-eat foods from convenience stores which are becoming popular "at the expense of restaurant patronage" (Fitzpatrick, 2017). In support of this, according to the National Restaurant Association (NRA) and The NPD Group, a market research company, the annual growth rate of restaurant sales over the past decade was only around a half of the annual growth rate in the last 47 years and restaurant traffic is declining while the food delivery and the convenience alternatives keep rocketing (Fitzpatrick, 2017).

Solo diners may also be a tempting market for other reasons. A number of studies have confirmed that solo diners generally have shorter duration meals than group diners (e.g., Herman, 2015; Kimes & Robson, 2004). Given that a high restaurant turnover rate is important to generating more sales (see review of Thompson, 2009), solo diners may indirectly contribute to increased revenues. Other revenue studies support the fact that the average check per person is typically higher for smaller parties than larger parties and that solo diners had the highest average check size per person, followed by parties of two, three, and four (Thompson & Sohn, 2009). This suggests that the checks from two solo diners may be greater than a check from a party of two diners. In the field study (Kimes & Robson, 2004), solo diners were also found to have higher average spending per minute ($0.48) than group diners (from $0.20 to $0.31, depending on the party size). Particularly, attracting those solo diners who missed a peak meal period due to a busy schedule or who regularly eat during off-peak meal periods due to nonstandard work shifts in the off-peak hours can be beneficial for restaurants. Lastly, although it is not directed at restaurant revenues, solo diners were also found to tip the servers with a higher percentage of the check compared to group diners (Freeman, Waler, Borden, & Latane, 1975; Seiter & Weger, 2010). Therefore, together with the strong association of more frequent dining out of the typical solo dining demographic, i.e., single households (Halperin, 2015; Takeda, 2016, 2017), these findings may provide some ideas for revenue growth.

Then, how profitable could solo diners be compared to other party sizes? A simple revenue and tip modeling analysis was performed with party sizes ranging from one to six. The goal of the analysis was to identify the table revenue per hour and server tip per hour assuming sixty

diners in the dining room composed with different party sizes (i.e., sixty solo diners vs. thiry two-sized group diners vs. twenty three-sized group diners vs. fifteen four-sized group diners vs. ten six-sized group diners). The field data about average check per person and meal durations (Kimes & Robson, 2004) and the percentage decrease in estimated tip for each additional diner to the party (Seiter & Weger, 2010) were obtained from previous studies in casual dining restaurants. One assumption was made with solo diners' average tip percentage of the check: 20%. The results (Table 1-1) showed that, among the sixty-diner compositions of different party sizes, both the table revenue per hour and server tip per hour were the highest for solo diners. However, while the servers can obtain the highest tip amount serving sixty solo diners compared to sixty diners of groups, the servers' efforts to serve the different compositions of sixty diners would also need to be taken into consideration. It is also possible that, as long as servers serve more group dining tables than the same number of solo dining tables, they can generate more tips. Likewise, in interpreting the results about table revenue per hour modeling, how much space the tables that are most suitable for each party size would take up the dining room is an important consideration.

Therefore, another revenue modeling analysis was performed extending the previous revenue analysis model. The goal of the analysis was to identify the table revenue per hour per square foot. The guiding information to model table and chair square footage was obtained from a restaurant design and equipment textbook (Katsigris & Thomas, 2009). Assumptions were made with a hypothetical solo dining table: the table size (24" × 24") was slightly smaller than that of a two-top table (24" × 30") and one chair was assigned to this table (e.g., one-top table, bar tables, counter tables, large communal tables). The results (Table 1-2) showed that, the table revenue per hour per square foot was the highest for solo diners compared to the group diners of two to six. However, a caution is needed to interpret the results as the aisles around the tables to encompass the chairs were not considered in this modeling and the results may vary as smaller tables typically need more aisles.

Table 1-1. Revenue and server tip modeling analysis per hour assuming sixty diners of varying party sizes

Party size	**Average check per person ($)**	**Average tip per person ($)**	**Table revenue ($)**	**Server tip ($)**	**Meal duration (min)**	**Table turnover per hour**	**Table revenue per hour ($)**	**Table revenue per hour assuming sixty diners of the party size ($)**	**Server tip per hour ($)**	**Server tip per hour assuming sixty diners of the party size ($)**
1	19.97	3.99	19.97	3.99	46.90	1.28	25.55	1532.88	5.11	306.58
2	13.15	2.47	26.30	4.94	44.60	1.35	35.38	1061.43	6.65	199.55
3	11.40	2.01	34.20	6.02	48.80	1.23	42.05	840.98	7.40	148.01
4	10.60	1.74	42.40	6.95	51.20	1.17	49.69	745.31	8.15	122.23
5	9.34	1.42	46.70	7.10	50.50	1.19	55.49	554.85	8.43	84.34
6	10.10	1.41	60.60	8.48	51.30	1.17	70.88	708.77	9.92	99.23
	Kimes & Robson, (2004)	*20% estimation for solo diners; then, a 1.2% decrease for each additional diner (Seiter & Weger, 2010)*	*Party size × Average check per person*	*Party size × Average tip per person*	*Kimes & Robson, (2004)*	*60 / Meal duration*	*Table revenue × Table turnover per hour*	*(60 / Party size) × Table revenue per hour*	*Server tip × Table turnover per hour*	*(60 / Party size) × Server tip per hour*

Table 1-2. Revenue modeling analysis per hour per square foot

Party size	Average check per person ($)	Table revenue ($)	Meal duration (min)	Table turnover per hour	Table revenue per hour ($)	Required square feet per person not including aisles (sq. ft)	Table revenue per square foot not including aisles ($)	Table revenue per hour per square foot not including aisles ($)
1	19.97	19.97	46.90	1.28	25.55	6 (table + 1 chair)	3.33	4.26
2	13.15	26.30	44.60	1.35	35.38	9 (table + 2 chairs)	2.92	3.93
3	11.40	34.20	48.80	1.23	42.05	17 (table + 4 chairs)	2.01	2.47
4	10.60	42.40	51.20	1.17	49.69	17 (table + 4 chairs)	2.49	2.92
5	9.34	46.70	50.50	1.19	55.49	24.5 (table + 6 chairs)	1.91	2.26
6	10.10	60.60	51.30	1.17	70.88	24.5 (table + 6 chairs)	2.47	2.89

Table 1-2. Continued

	Kimes & Robson, (2004)	*Party size × Average check per person*	*Kimes & Robson, (2004)*	*60 / Meal duration*	*Table revenue × Table turnover per hour*	*Table square footage:* *1 top = 24" × 24" = 4'²;* *2 top = 24" × 30" = 5'²;* *4 top = 36" × 36" = 9'²;* *6 top = 48" diam = 12.5'²;* *8 top = 60" diam = 19.63'²* *Chair square footage: 2'² estimation per chair*	*Table revenue / Required square feet per person not including aisles*	*Table revenue per hour / Required square feet per person not including aisles*

Therefore, based on the consensus about the growing importance of meeting solo diners' needs for restaurants' sales and profits, and depending on the location, concept, type, and major consumer base of the restaurant, some restaurants may benefit from specifically targeting solo diners, while other restaurants may enjoy added benefits by adopting solo dining preferences in their establishments. There is in fact a growing number of restaurants worldwide that are positioned exclusively for solo diners and enjoy a good deal of profit from these consumers. One such example is Eenmaal restaurant where all tables are for parties of one exclusively; this restaurant first opened in Amsterdam, then in London, and is planned to open in other European cities, as well as New York City based on its popularity among frequent solo diners (Burton, 2018; Dossey, 2016; Dutton, 2016). While other restaurants are still positioned for the dominant party size, i.e., group diners, they are beginning to consider ways to give memorable experiences to solo diners as well (Burton, 2018).

1.2. Objectives and Research Questions

There are numerous understudied important areas in solo dining research. For example, what are solo diners' preferences and motives for menu choices in on-site restaurant dining? Do solo diners tend to choose healthy menu items more than group diners, and if so, why? What are solo diners' motives in comparison to group diners in off-site restaurant dining? Do solo diners tend to order more carryout or delivery meals as compared to group diners, and if so, why? What kind of restaurant service or environmental aspects do solo diners look for in restaurant dining? What specific dimensions and attributes enhance the experience and return intentions of solo diners in restaurants? Subsequently, this dissertation proposes following research objectives in the setting of casual dining restaurants: (1) to examine the effect of dining social context (solo vs. group) on the intentions to order healthy vs. less healthy menu items; (2) to examine the effect of dining social context (solo vs. group) on the intentions to order a restaurant meal for off-site vs. on-site consumption; and (3) to develop a multi-dimensional scale that provides researchers and restaurant operators with a useful measurement tool that captures important restaurant factors for solo diners. Accordingly, the following three studies were proposed for this dissertation.

- *Study 1: Can Dining Alone Lead to Healthier Menu Item Decisions than Dining with Others? The Roles of Consumption Orientation and Menu Nutrition Information*

- *Study 2: Off-Premise Restaurant Dining: The Impacts of Dining Social Context and Self-Determination on Solo and Group Diners' Intentions*
- *Study 3: The Development and Validation of a Solo Diner Friendliness Scale: SoDF*

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CHAPTER 2. LITERATURE REVIEW

2.1. Solo Dining in Restaurants

This dissertation defines solo dining as the behavior of dining alone in restaurants; thus, while certain demographic groups such as single households can be *more frequent* solo diners, solo diners do not represent a fixed group of consumers and any consumers who are eating by themselves in a restaurant are considered solo diners at the moment. The earliest marketing research involving solo consumption behavior was Goodwin and Lockshin (1992), in which the authors noted the growing prevalence of the consumers shopping, travelling, and dining out alone due to changing demographics and social values, and argued the importance of developing strategies that provide supporting environments to address issues of solo diners, such as loneliness, stereotyping, and stigmatization. Since then, solo consumer research has been scarce. Only after the 2000's, Donthu and Gilliland (2002) and Bouhlel et al. (2011) discussed single consumers as an expanding market and examined their unique consumption orientation and psychographic variables but their focus was on unmarried single adults at a certain life cycle stage (i.e., a certain population group) as compared to solo consumers who are only temporarily engaged in consumption activities (i.e., not a fixed population group). More recently, Leary, Herbst, and McCrary (2003) examined the psychological mechanism of why people engage in solitary activities, examining whether it is because of high solitropism ("strong desire to spend time alone") or low sociotropism ("weak desire to spend time with others"; p. 59) and suggested positive values of solitude. Ratner and Hamilton (2015) explored solo consumption behaviors extensively in different settings using different activities with the aim of examining when and why solo consumers are hesitant to engage in consumption activities (e.g., going to a restaurant, a theater, or a museum alone). Their findings revealed that negative inferences from other observers negatively affected their interest in solo activities, the effect was stronger for hedonic than utilitarian activities (e.g., solo dinner at restaurants vs. solo grocery shopping), and the effect was attenuated when the activities were seen as more utilitarian (e.g., doing some work while at coffee shop alone vs. merely drinking a coffee while at coffee shop alone).

In the field of hospitality and tourism research, solo travelers' characteristics and profiles, antecedents of satisfaction and dissatisfaction, and barriers of solo travel have been widely

studied (e.g., Bianchi, 2015; Laesser, Beritelli, & Bieger, 2009; Jordan & Gibson, 2005; Wilson, 2004). By comparison, the understanding of solo dining was only briefly explored in solo travel literature (Heimtun, 2010; Jordan & Gibson, 2005). While a stream of dining research examining the solo inhibition of eating (or social facilitation of eating; i.e., a tendency to eat more when dining with others than alone) and commensality patterns compared dining alone to dining in a group, thus offering general insights about solo and group dining (Cho, Takeda, Oh, Aiba, & Lee, 2015; Herman, 2015; Hetherington, Anderson, Norton, & Newson, 2006; Lee, Cho, & Oh, 2012; Sobal & Nelson, 2003; Yiengprugsawan et al., 2015), the studies did not specifically focus on the restaurant setting.

The most relevant solo restaurant dining studies appeared only recently. Heimtun (2010) interviewed 32 middle-aged, single women who dined out alone on holidays and revealed their fears of loneliness and marginalization in the solo dining experiences. Danesi (2012) also interviewed 45 young adults about solo and group dining experiences and revealed the pleasures and stresses related to each dining context. An industry article (Halperin, 2015) showed the growing trends in solo dining, reported statistics about the profile, frequencies, preferences of restaurant types and activities, and suggested strategies for serving these consumers. Dossey (2016) explored why people are fearful about solitude and provided examples of real-world restaurants that addressed the problems associated with dining alone, and how cellphones and teddy bears could be used to deal with the negativity of solo dining. Han (2018) interviewed 30 frequent solo diners at full-service restaurants and found positive and negative environmental factors to their experiences such as other diners, soundscape, physical proximity to others, familiarity with restaurants, and aroma in terms of reducing discomfort and increasing comfort. In addition, Her (2016) and Her and Seo (2018) examined the major determinants and mediators of solo dining intentions at restaurants and found that other diners and public self-consciousness played a crucial role in deciding whether to eat at the restaurant through anticipated loneliness and negative evaluation from others.

As shown from the review of literature, solo dining studies are limited in their quantity (i.e., the number of research) and quality (i.e., a range of factors examined). In this regard, the three studies in this dissertation explored solo dining with important historical or emerging research factors expanding the literature on solo dining as well as general consumer dining behaviors. Study 1 related solo and group dining to the menu decision-making process and

nutrition labelling. Study 2 related solo and group dining to the motives of on-site and off-site consumption and the decision-making process between them. Study 3 related solo dining to the important restaurant food and service attributes that enhance the experiences and revisit intentions of solo diners. Accordingly, the overview of the literature specific to these areas follows.

2.2. Reasons for Solo Dining

Prior to the literature overview for the three studies, a variety of reasons why consumers might dine out by themselves are presented. Based on self-determination theory, human behavioral motivations are categorized as intrinsic (i.e., autonomous, authentic, self-authored, by choice) and extrinsic (i.e., controlled, forced, by coercion), resulting in different experiences and consequences for the same behavior (Ryan & Deci, 2000). Following the theory, the reasons for solo dining are also categorized by extrinsic and intrinsic motivations.

Beginning with extrinsic motives, as societal demands for education and career increase, more people struggle to find someone to eat with at the same time for every daily meal (Danesi, 2012; Ratner & Hamilton, 2015). Depending on one's schedule, it is often difficult to find overlapping spare time with friends or colleagues. This is particularly the case for weekday lunch meals during busy school or work hours, with studies reporting that solo dining occurs more frequently for lunch than dinner (Sobal & Nelson, 2003; McLynn, 2014). In these situations, people may not have other options (e.g., to go home and eat alone) and thus eat out despite being alone. Lee et al. (2012) also showed that the primary reason Korean university students eat solo was that they "cannot find someone to eat together" at the moment, followed by "lack of time" and "saving time" (p. 285). If not a weekday lunch, it is also plausible that due to a special event or schedule, someone in a family or household has to come home later than the usual dinner hour or gets up earlier than ordinary breakfast hour and thus goes out to eat alone. Takeda (2016) supported this view by summarizing the empirical data of Japanese and Americans' solo eating as following: "*Busy modern lifestyles make commensality difficult. Many Japanese full-time workers come back home late and have dinner alone in the late evening. Many Australian workers struggled to synchronise multiple schedules to spend meals time together with their family, friends, and work colleagues. Commensality became a practice which requires individual's efforts and determinations in order to achieve every day.*" (p. 184)

Second, solo dining may be due to non-daily, occasional circumstances. Based on the statistics of business market sales growth, business travels are increasing and will continue to increase (Statista, 2018). These business travelers often find themselves dining alone as it is difficult to find friends, family, neighbors, acquaintances, and colleagues while abroad. Furthermore, access to kitchens for cooking while traveling is not easy to find unless travelers stay at residential places. In these occasions, people have few choices but to dine out alone (Heimtun, 2010; Jonsson & Ekström, 2009).

Third, solo dining may be due to prolonged migration issues. According to a Gallup survey, migrations are commonly found worldwide. For example, almost a quarter of the American population moved on average once every five years (Esipova, Pugliese, & Ray, 2013). As transportation technology increases and more people seek higher education and better job opportunities, there are increased societal relocations over people's lifetimes. For example, students from rural hometowns may temporarily live at urban cities while studying at universities, can study abroad for years to obtain higher education degrees, or study languages abroad for a shorter duration, while workers may be relocated, promoted, or obtain internships abroad and so move to different cities. These temporary migrations isolate people from their closest families and friends limiting social connections at least in the short term. Thus, they may behave similar to singles at the beginning of the transition and dine alone more frequently.

Fourth, the most prolonged forced reason for solo dining would be living alone. As mentioned earlier, there are more singles in the U.S. and worldwide (OECD IFP, 2011; U.S. Census Bureau, 2019). Many of these people are divorced and widowed elderly, with the number of elderly people living alone increasing dramatically (Davis, Murphy, Neuhaus, Gee, & Quiroga, 2000). More importantly, among the elderly people, those living alone were significantly more likely to eat alone than those living with others (i.e., 82% vs. 8%; Torres, McIntosh, & Kubena, 1992). A part of their solo eating occasions would necessarily take place at restaurants and away from home. For the single dwellers, it is a more prolonged life stage and some of them may indeed lack the close social connections needed to dine together for a myriad of reasons such as the loss of life-long spouses, partners, no offspring, smaller social networks or communities, no intimate family, and an innate lack of sociability. These reasons contribute to more occasions of externally forced solo dining and also are related to negative consequences such as depression, chronic loneliness, and poor health (Davis et al., 2000; Kimura et al., 2012).

Shifting to intrinsic (i.e., self-motivated) reasons for solo dining, fifth, people may choose to eat out alone for the pursuit of freedom and pleasure. Literature on positive aspects revealed that people associated liberty or pleasure with solo dining (Cho et al., 2015; Danesi, 2012; Halperine, 2015). In a group dining situation, choices on when, where, and what to eat are often limited in order to accommodate everybody's preferences (Danesi, 2012). For example, it may be the case that the spouses, family members, friends, or colleagues whom people frequently dine with do not like certain types of foods that they prefer. Or sometimes, people may not want to wait until the conventional mealtime and would like to enjoy meals at whatever time they want at their own pace. The freedom and the ability to do things their own way was a strong positive factor for eating alone (Pliner & Bell, 2009). In psychology, this desire to spend time alone (solitude) is called solitropism and may be a person's propensity or a situational factor (Leary et al., 2003).

Sixth, true gourmets (so called "foodies") may dine out alone to enjoy the maximum palatability of foods. Dining with others involve continuous conversations, social interactions, dining manners, and some formality of social norms. While some people find conviviality in dining with others (Danesi, 2012), others consider it as a distraction from the color, smell, and taste of food itself and thus dining alone is considered a true connection to the foods (Fisher, 1976; Neimark, 2015). As opposed to the long-held human culture of commensality, these people may think eating alone is a blessing and will choose to visit their favorite restaurants alone to savor their favorite foods. It is even considered a compliment for restaurants because these solo diners came merely out of desire for their foods (Bruni, 2006).

Seventh, people may choose to dine out alone to temporarily avoid social interactions. Sociotropism indicates the desire for social contact, thus low sociotropism indicates a disinterest in social contact (Leary et al., 2003). From time to time, people may tire of endless social interactions, especially under stressful situations and when the relationship is with uncomfortable people such as formal business conferences, unfamiliar acquaintances, and unfavorable work supervisors and colleagues. Studies on commensality reported such negative aspects of sociality on eating including the social pressure to talk while eating, public scrutiny of one's own eating style, and "obligations to stimulate conversation and rigid norms and manners" (Danesi, 2012, p. 9; Pliner & Bell, 2009). Specifically, in cultures with strong collectivism (e.g., Korea), a growing

number of people are distressed with forced group conformity behaviors and seek extended time alone for relaxation, peace, and meditation.

Eighth, neither internally nor externally, but people may dine out alone just out of necessity. For example, yet unpublished data about the motives of solo dining found in the first study of this dissertation included a third of people reporting "just out of convenience". In these occasions, people do not care whether they eat out with others or by themselves, but rather focus only on factors of convenience such as the ease and time savings in getting to restaurants, taking meals, and finishing meals. Cho et al. (2015) supported that solo eating was highly associated with fast food and quick meals among Korean university students. Although this may seem similar to the first reason, the distinction is clear between whether people dined out alone because they wanted to find dining partners but failed or whether they just chose to dine out alone without any pressing needs for dining partners. According to literature on the psychology of loneliness, the former may feel stronger loneliness as it is a perceived gap between the desired social state and the actual social state (Goodwin & Lockshin, 1992).

Ninth, solo leisure travelers are the fastest growing segment (11% among the whole leisure travelers in the U.S.; Trejos, 2011) and thus people may dine out alone while traveling (Laesser et al., 2009). Especially, greater disposable income makes leisure travel more accessible for many people and, especially, among women (Jordan & Gibson, 2005). Accordingly, not only for business, but also for pleasure, people travel alone to different destinations today. Without the constraints of group travel, these solo travelers may be able to fully enjoy the sceneries, activities, and interactions with other travelers and locals. During solo travel, similar to business travel, people have more chances to eat at restaurants alone by choice or by conditions. Unless they find somebody during the travel to accompany, it is likely that they will eat at local food restaurants alone.

Lastly, in addition to solo travels, more people are engaging in various activities alone (Ratner & Hamilton, 2015; Halperin, 2015). It is likely that people eat something at nearby restaurants alone during their solo shopping, solo movies, solo gallery and museum visiting, and solo concerts.

2.3. Healthy Menu Choices in Restaurants

Healthy eating in restaurants has received significant attention from numerous researchers with emphasis on applications of theories and models to predict healthy item choices, effects of menu nutrition information, and effects of healthy items on consumer biases, attitudes, satisfaction, and revisit intentions in mainstream marketing, nutrition, and hospitality literature (e.g., Burton, Howlett, & Tangari, 2009; Chandon & Wansink, 2007; Glanz et al., 2007; Hur & Jang, 2015; Jun, Kang, & Arendt, 2014; Kang, Jun, & Arendt, 2015; Kim, Ham, Yang, & Choi, 2013; Kim, Park, Kim, & Ryu, 2013; Lando & Labiner-Wolfe, 2007; Lee, Lee, & Kwon, 2015; Swartz, Braxton, & Viera, 2011; Wei & Miao, 2013; Yoon & George, 2012). The major findings are summarized in Table 2-1. Thus, the first study bases its research model on the processes of healthy item decisions and impacts of menu nutrition information in restaurants, and the psychological theories supporting their relationships (i.e., temporal construal theory; Trope & Liberman, 2003) to understand the healthy menu item decisions of solo vs. group diners.

Table 2-1. Research findings about healthy eating in restaurants

References	**Major Findings**
Jun et al. (2014); Kang et al. (2015)	Perceived healthiness, health value, anticipated guilt and pleasure, attitudes toward healthiness and taste, hedonic and positive outcome expectations, and dietary concerns affect healthy choices.
Hur & Jang (2015); Kim et al. (2013); Wei & Miao (2013)	The perceived healthiness of restaurant food affects menu item choices, value, satisfaction, and revisit intentions.
Kim et al. (2013)	The theory of planned behavior was applied to predict intentions to read nutrition information on menu.
Burton et al. (2009); Lee et al. (2015); Yoon & George, (2012)	The disclosure of menu nutrition information affects the perceptions of restaurant healthiness and trustworthiness; and consumer decision-making process through nutritional perception, overall food evaluation, and purchase intentions.
Howlett, Burton, Bates, & Huggins (2009); Yoon & George (2012)	Menu nutrition labelling does not always lead to healthier choices.

2.4. Restaurant Dining Motives

Motives for dining out have been repeatedly studied over the past few decades, although the studies did not specify the reasons for on-site and off-site consumption. The earliest, most widely cited study is Auty (1992), in which the author identified dining out occasions from interviews: a celebration, social occasion, convenience/quick meal, and business meal. Following the article, Kivela (1997) also classified dining out occasions into the same four categories but also revealed subcategories, such as hunger, for fun, family outing, and a place to meet someone. More recently, Noone and Mattila (2010) interviewed frequent full-service restaurant diners and revealed 16 goals for dining out that were largely comprised of outcome-oriented (e.g., satisfying hunger and thirst), experiential-oriented (e.g., socializing, relaxing, savoring the experience), and interaction-oriented (e.g., being paid attention, pampered, and acknowledged by server). More recently, Ponnam and Balaji (2014) suggested five categories of restaurant visitation motives: simple dining out, celebration, hanging out, dating, and take-away.

In the general marketing literature, part of such motives and values consumers seek in the purchase of products or services is largely divided along utilitarian or hedonic boundaries, depending on whether the primary function of the purchase is task completion or pleasure and enjoyment (Khan, Dhar, & Wertenbroch, 2005). Likewise, in restaurant consumption experiences, Park (2004) and Ryu, Han, and Jang (2010) identified the utilitarian and hedonic values that consumers seek in restaurant dining such as “simple and convenient”, “economical”, “quick” vs. “good feeling”, “fun and pleasant”, “dining experience”. Convenience orientation is another critical motive for dining out that is gaining academic and practical attention as consumers increasingly value convenience (Berry, Seiders, & Grewal, 2002), and is positively associated with restaurant dining and take-out (Candel, 2001). Lastly, research investigating motives, satisfaction, and purchase intentions related to take-out and delivery is lacking. Other than trade journals, Boyce, Broz, and Binkley (2008) studied consumer food safety concerns over take-out containers and packaging. Thus, the second study investigates the motives for off-premise dining (carryout and delivery) compared to the well-understood motives of dining-in using the contexts of solo vs. group dining.

2.5. Restaurant Attributes

Important restaurant attributes consumers consider when selecting restaurants and when evaluating the satisfaction and experiences from the restaurants are also well-established across a number of studies. For example, Ponnam and Balaji (2014) provided an extensive review of key restaurant attributes affecting various consumer outcomes such as perceived value, emotions, and visit intentions in studies published from 1997 to 2012. For example, the influential attributes included food dimensions (food quality, food performance, healthiness, natural ingredients, taste), service dimensions (responsiveness, speed of service, attentiveness, reliability, excellence, competence, kindness), environment dimensions (atmosphere, wait-area comfort, seating comfort, cleanliness, facilities), and other dimensions (price, location, reputation, reservations, parking). Other studies further identified opening hours, prestige, facilities for children, food variety, new experience, prompt complaint processing, and brand as determinants of restaurant choices (Auty, 1992; Gregory & Kim, 2004; Heung, 2002; Kivela, 1997; Mattila, 2001). As noted above, among these different single attributes, the most extensively used comprehensive dimensions are food, service, and environment along with other miscellaneous factors (Jang & Namkung, 2009; Namkung & Jang, 2008; Ryu & Han, 2010; Ryu, Lee, & Kim, 2012). Thus, the third study explores the range of important restaurant attributes that positively affect solo diners' experiences and revisit intentions in building on this literature.

2.6. Hypotheses

In order to achieve the overall objectives of the dissertation, following hypotheses guided the first and second studies. The third study did not contain hypotheses because of the exploratory nature of a scale development study.

Study 1: Can Dining Alone Lead to Healthier Menu Item Decisions than Dining with Others: The Roles of Consumption Orientation and Menu Nutrition Information

H1-1. The dining social context will affect the intention to order (a) healthy and (b) indulgent menu items. Solo (vs. group) diners will have (a) a higher intention to order healthy menu items and (b) a lower intention to order indulgent menu items.

H1-2. The dining social context will affect the consumption orientation. Solo (vs. group) diners will show a more utilitarian (vs. hedonic) orientation.

H1-3. The consumption orientation will mediate the effect of dining social context on the intention to order (a) healthy and (b) indulgent menu items.

H1-4. An increase in the amount of nutrition information will strengthen the effect of dining social context on the intention to order (a) healthy and (b) indulgent menu items.

H1-5. An increase in the amount of nutrition information will strengthen the indirect effect of dining social context on the intention to order (a) healthy and (b) indulgent menu items through a consumption orientation.

Study 2: Off-Premise Restaurant Dining: The Impacts of Dining Social Context and Self-Determination on Solo and Group Diners' Intentions

H2-1. Convenience seeking will be stronger for solo (vs. group) diners.

H2-2. Convenience seeking will mediate the effect of dining social context on off-premise dining intentions, such that off-premise dining intentions will be stronger for solo (vs. group) diners through convenience seeking.

H2-3. Polychronicity seeking will be stronger for solo (vs. group) diners.

H2-4. Polychronicity seeking will mediate the effect of dining social context on off-premise dining intentions, such that off-premise dining intentions will be stronger for solo (vs. group) diners through polychronicity seeking.

H2-5. Anticipated enjoyment of on-premise dining will be weaker for solo (vs. group) diners.

H2-6. Anticipated enjoyment of on-premise dining will mediate the effect of dining social context on off-premise dining intentions, such that off-premise dining intentions will be stronger for solo (vs. group) diners through anticipated enjoyment of on-premise dining.

H2-7. The difference in (a) convenience seeking, (b) polychronicity seeking, and (c) anticipated enjoyment of on-premise dining between solo and group diners will be attenuated in the context-determined (vs. self-determined) condition.

H2-8. The difference in off-premise dining consumptions between solo and group diners through (a) convenience seeking, (b) polychronicity seeking, and (c) anticipated enjoyment of on-premise dining will be attenuated in the context-determined (vs. self-determined) condition.

Study 3: The Development and Validation of a Solo Diner Friendliness Scale: SoDF

Hypotheses were not developed. Instead, a scale was developed and validated using a standardized scale development and validation process.

2.7. Research Framework of the Study

The dissertation proposed three related studies (Figure 2-1). The overall purpose was to enhance the understanding of solo diners' motives, preferences, and behavioral intentions in on- and off-site restaurant dining (particularly in a casual dining restaurant setting). This was achieved by examining solo vs. group diners' motives and behavioral intentions of menu choices in on-site restaurant dining (study 1), examining solo vs. group diners' motives and behavioral intentions for off-site restaurant dining (study 2), and developing and validating a multi-dimensional restaurant scale related to the solo diner friendliness (study 3).

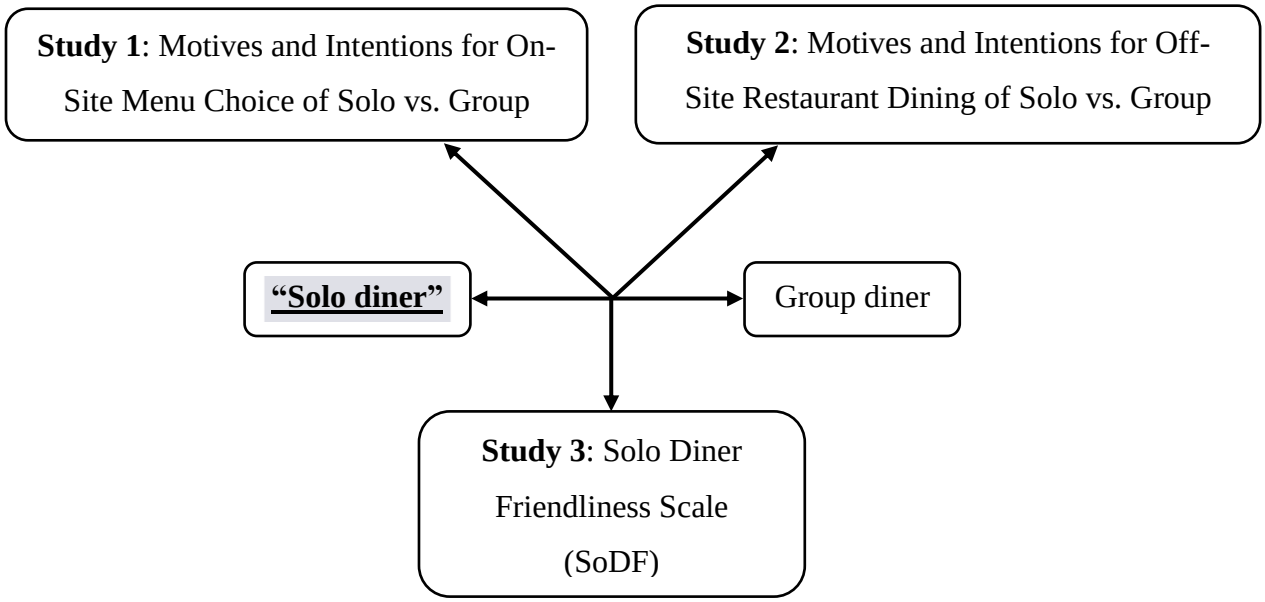

Figure 2-1. Research framework of the dissertation

2.8. References

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CHAPTER 3. STUDY 1: CAN DINING ALONE LEAD TO HEALTHIER MENU ITEM DECISIONS THAN DINING WITH OTHERS? THE ROLES OF CONSUMPTION ORIENTATION AND MENU NUTRITION INFORMATION

3.1. Introduction

In most developed countries, the proportion of single person households is dramatically increasing while traditional, multi-person households are shrinking (OECD International Futures Programme, 2011). In the U.S., the number of single person households has reached 35 million (28%), the second largest type of household after two person households (U.S. Census Bureau, 2018). Single person households are the leading type of household in a survey of 28 European countries, accounting for one-third (34%) of total households (Eurostat, 2019). The growth in single person households is expected to continue, such that they will exceed 40% of total households in many countries (OECD IFP, 2011). The growing number of singles is thought to be fueled by an increase in late marriages, divorces, widows and widowers, single elderly, and voluntary single life choices, which are related to extended lifespans and more individualized lifestyles (Bouhlel, Mzoughi, & Chaieb, 2011; Goodwin & Lockshin, 1992; Ratner & Hamilton, 2010).

Parallel to this phenomenon, the number of solo restaurant diners is also growing. Research notes that solo consumers spend longer time periods outside the home during the day due to education or career responsibilities, dual-career demands, and reductions in size of social networks (in personal relationships, as well as community and social organizations) (Goodwin & Lockshin, 1992; McPherson, Smith-Lovin, & Brashears, 2006; Ratner & Hamilton, 2010). In the hospitality and tourism industry, these phenomena have led to an increase in solo diners. In fact, consumers are eating alone in more than half of their dining occasions (McLynn, 2014), and an increased number of parties of one are found in restaurants (Bruni, 2006; "OpenTable study", 2015). Considering the long-term potential of the solo dining population for driving market change and boosting sales in the industry, the unique characteristics of solo diners and their subsequent behavioral patterns compared to group diners warrant examination.

Previous studies examining the difference between solo and group diners' food consumption mostly focused on the amount of food consumed or the meal duration, in which the

consumption did not occur in a restaurant setting (i.e., *social facilitation of eating*; Herman, 2015; Hetherington, Anderson, Norton, & Newson, 2006). Other studies on eating out alone have explored feelings and experiences of solo diners in-depth but the studies were limited to qualitative analyses of a few individuals (Danesi, 2012; Heimtun, 2010) or focused on a particular gender (Lahad & May, 2017), lacking generalizability to a broader population. More recently, quantitative approaches have examined solo diners' restaurant visit intentions (Her & Seo, 2018), dining experiences (Hwang, Shin, & Mattila, 2018), and anticipated satisfaction (Shin, Hwang, & Mattila, 2018), yet the studies provided solo diners' perspectives only, lacking a comparison with group diners, thus their varying menu-decision making processes are not known. Therefore, to address these research gaps, this study sought answers to the following questions: Q1. Do solo diners in restaurants make different menu item decisions compared to group diners?; Q2. If so, what are the underlying mechanisms that lead to the different menu decisions?; and Q3. Are the different menu decisions contingent upon certain conditions? Specifically, consumer psychology studies in the marketing field often examine food choices by comparing relatively rational choices (i.e., healthier foods) to relatively more emotional choices (i.e., less healthy, more indulgent foods) (e.g., Gardner, Wansink, Kim, & Park, 2014; Shen, Zhang, & Krishna, 2016). Building on this literature, this study focused on how solo dining may lead to different preferences for healthier versus indulgent menu items compared to group dining.

This study's arguments are based primarily on the self-control dilemma and temporal construal theory. The self-control dilemma (or self-regulation) reflects the conflicts between the higher order, long-term goal with a future benefit and a lower order, short-term goal with an immediate benefit. Temporal construal theory describes that the activation of a distal temporal construal leads to greater self-control compared to the activation of a proximal temporal construal; that is, people's temporal focus on the future help them behave in a way that is more aligned with their long-term goals, resisting the temptation that yields immediate pleasure (Baumeister, 2002; Fujita, Trope, Liberman, & Levin-Sagi, 2006; Kivetz & Keinan, 2006; Trope & Liberman, 2010). While these theories are well-established concepts in psychology and marketing literature and widely used in healthy vs. indulgent food consumption contexts (Fedorikhin, & Patrick, 2010; Gardner et al., 2014; van Beek, Handgraaf, & Antonides, 2017), they have rarely been used in restaurant contexts.

Thus, in application of these concepts, we propose that solo diners are more likely to select healthier (vs. indulgent) menu items than group diners based on the activation of a distal (vs. proximal) temporal construal resulting from the lack (vs. presence) of dining partners. This study also assessed whether the effect is mediated by solo diners' pursuit of utilitarian (vs. hedonic) consumption orientation compared to group diners (Ratner & Hamilton, 2010), and whether the effect is conditioned on the amount of nutrition information in the menu (Yoon & George, 2012). In sum, this study examined the effect of dining social context on healthy vs. indulgent menu item intentions, mediated by consumption orientation, and moderated by the amount of nutrition information on menus in a casual dining restaurant setting.

3.2. Literature Review

3.2.1. Dining social context and healthy menu item intentions

The body of psychology and marketing sciences literature has established the concept of self-control, or self-regulation, based on the notion that people tend to be shortsighted, pursue immediate pleasures, and are thus easily tempted by indulgent choices (Baumeister, 2002; Kivetz & Keinan, 2006). However, the problem with this inherent myopia is that when people have a conflicting long-term goal, they, in retrospect, regret their shortsighted decisions as they were not leading to their long-term goal, resulting in "more unsatisfied and unhappy consumers" (Baumeister, 2002, p. 675). Therefore, consumers encounter the self-control dilemma in everyday decisions in which they need to weigh the advantages of choices with prompt benefits with those providing delayed future benefits. The most prevalent example of such decisions would be the conflict between healthy foods (e.g., foods high in vitamins and minerals such as grapes, apples, or granola bars) which provide long-term health and well-being versus less healthy but indulgent foods (e.g., foods high in fat, sodium, and sugar such as chocolate, cookies, or candy bars) which provide immediate pleasure and enjoyment (Fedorikhin & Patrick, 2010; Gardner et al., 2014).

In dealing with the dilemma, numerous studies have attempted to identify the conditions under which consumers are more inclined to a higher-order, long-term goal or a lower-order, short-term goal (Baumeister, 2002; Kivetz & Keinan, 2006; Werle, Wansink, & Payne, 2015; Wilcox, Vallen, Block, & Fitzsimons, 2009). One of the explanations that has gained popularity

is temporal construal theory. Originating from construal level theory (CLT), temporal construal theory suggests that a distal temporal perspective activates higher-level, abstract construals and leads to long-term goals, while a proximal temporal perspective activates lower-level, concrete construals and yields more short-term goals. Simply interpreted, it means that a future focus engenders more abstract considerations and long-term goals, while an immediate focus is more concrete in nature and thus leads to short-term goals (Fujita et al., 2006; Gardner et al., 2014; Trope & Liberman, 2010). In addition, CLT also shows that greater social distance leads to greater self-control (Fujita et al., 2006).

In the context of solo dining, the crucial difference between solo and group diners is the lack of dining partners, which can play a significant role in diners' attitudes, preferences, and experiences. When there are dining partners, social facilitation studies have shown that the presence of dining partners induces more emotions and arousal (see a review study of Herman, 2015). When there are no dining partners, the solitude deactivates high-arousal affects such as excitement and increases low-arousal affects such as calmness (Nguyen, Ryan, & Deci, 2018). This provides a plausible explanation about why consumers dining with others are more likely to have higher arousal based on their opportunity to have joyful or emotional conversations in their dining group. By contrast, consumers dining by themselves would be less likely to have an affect trigger from dining companions and would be more likely to remain calm, relative to those with dining partners. This different level of arousal between solo and group diners can play a deterministic role in self-control decisions. That is, a consumer study on resistance to temptation showed that an elevated arousal diminishes cognitive capacity and thus decreases a resistance to indulgent foods, while a lower arousal saves cognitive capacity and leaves more room for self-regulatory choices (Fedorikhin & Patrick, 2010).

In this regard, it is proposed that solo diners might be generally more rational than group diners due to their greater cognitive resources and would therefore be more likely to consider future interests. Temporal construal theory supports the consideration of future consequences leading to a self-regulatory, higher order, long-term goal, which would correspond to the selection of healthier choices (van Beek et al., 2017). In comparison, relatively more aroused group diners whose focus is on the present context may have a decreased resistance to temptation and pursue a lower order, short-term goal of ordering less healthy, more indulgent food (van Beek et al., 2017). Therefore, when comparing solo and group dining in restaurants and their

decision-making among healthier vs. more indulgent menu items, we proposed that solo diners will have a higher intention to order healthy menu items and a lower intention to order indulgent menu items compared to group diners.

H1. *The dining social context will affect the intention to order (a) healthy and (b) indulgent menu items. Solo (vs. group) diners will have (a) a higher intention to order healthy menu items and (b) a lower intention to order indulgent menu items.*

3.2.2. Mediation by consumption orientation

Marketing literature has extensively shown two common motivations, utilitarian and hedonic, in consumption activities (Dhar & Wertenbroch, 2000; Ha & Jang, 2010; Holbrook & Hirschman, 1982). Utilitarian-oriented consumption primarily pertains to instrumental and functional motivations, whereas hedonic-oriented consumption is related to the pursuit of pleasing and enjoyable experiences (Khan, Dhar, & Wertenbroch, 2005). Based on the previous premises for solo and group diners, it is plausible that consumers sharing a meal with others may seek more experiential dimensions of restaurant dining that result in pleasure, excitement, and fun, to enjoy with dining partners (i.e., hedonic consumption). By comparison, when consumers dine out alone, the occasion may be less associated with the pursuit of fun experiences and more related to the achievement of necessary goals such as fulfilling basic food needs (i.e., utilitarian consumption).

In fact, empirical findings support the concept that solo consumers are less likely to engage in hedonic consumption activities (e.g., dining in a restaurant, watching a movie at a theater) and more interested in utilitarian consumption activities (e.g., grocery shopping) when the activities take place in public (Ratner & Hamilton, 2015). Hospitality studies also support these relationships by showing that prioritized hedonic attributes in restaurants such as design, décor, and ambience were generally associated with hanging out or dating occasions, which are exclusive to those in group dining situations, while utilitarian attributes in restaurants such as speed of service and price were more valued by those dining alone (Auty, 1992; Kivela, 1997; Ponnam & Balaji, 2014). Therefore, we propose that solo restaurant diners will be more utilitarian-oriented and less hedonic-oriented than group diners. Once utilitarian or hedonic consumption orientations are activated, they will affect the choice of healthy vs. indulgent menu items because, as confirmed in many studies (Khan et al., 2005; van Beek et al., 2017; Werle et

al., 2015), the selection of healthy or indulgent menu items helps achieve the utilitarian (i.e., basic food needs) or hedonic (i.e., enjoyable sensory experiences) goals, respectively. Thus, the consumption orientation mechanisms were hypothesized as follows:

H2. *The dining social context will affect the consumption orientation. Solo (vs. group) diners will show a more utilitarian (vs. hedonic) orientation.*

H3. *The consumption orientation will mediate the effect of dining social context on the intention to order (a) healthy and (b) indulgent menu items.*

3.2.3. The moderating role of the amount of nutrition information

In consumers' healthy or indulgent menu choices, evidence suggests the moderating role of certain external stimuli such as menu nutrition information. Nutritional labeling of menu items in restaurants as well as on packaged food products have expanded along with growing consumer interest in the nutritional values of foods (Hwang & Lin, 2010). Consumer health researchers have shown that such disclosure of nutrition information in menus enhances consumer awareness of the nutrition content of menu items and is an essential determinant of healthy item choices (Kozup, Creyer, & Burton, 2003; Wei & Miao, 2013). Recent legislation to mandate calorie labelling in all chain restaurants ($n \geq 20$ locations) in the U.S., which began in May of 2018, also reflects the reasoning that enhanced consumer awareness of the nutrient content of restaurant menu items will help consumers make healthier decisions (U.S. Food and Drug Administration [FDA], 2019).

On the other hand, some studies have suggested that the availability of nutrition information does not necessarily result in positive behavioral outcomes with regard to consumers' health. For example, nutrition information for a less healthy food with excessive levels of calorie and other nutrient content such as fat, sodium, and cholesterol decreased purchase intention only for those who had a high motivation to process the nutrition information (Howlett, Burton, Bates, & Huggins, 2009). An additional study showed that, compared to the absence of nutritional information, the disclosure of total calories and additional nutrition information for other nutrients (e.g., fat, sodium, and cholesterol) on even healthy restaurant menu items decreased consumers' purchase intentions due to consumers' previous higher expectations about the nutritional content of the item (Yoon & George, 2012). A field study also showed that, despite the presence of menu nutrition information, consumers generally selected

menu items based on their food preferences and only restrained eaters ordered food with fewer calories (Droms, 2006). Thus, these findings support that the provision of nutrition information on menus does not always lead to healthy choices, but rather its effect on consumers' menu choices is more dependent on consumers' preexisting conditions.

In the context of this study, it was proposed that increased consumer awareness of healthy nutrient levels of menu items due to the provision of menu nutrition information may lead to different results of healthy choices for solo vs. group diners. First, selecting healthy and indulgent menu items can respectively contribute to consumers' accomplishments of higher-order and lower-order goals that aligns with their temporal construal (section 3.2.1.). Grounded in temporal construal theory, rational, future-oriented solo diners with higher-order goals would be more willing to order healthier menu items as compared to emotionally heightened, present-oriented group diners with lower-order goals who would be more willing to order less healthy, indulgent menu items. Second, as shown by studies (Kozup et al., 2008; Wei & Miao, 2013; Yoon & George, 2012), the disclosure of nutrition information enhances consumer awareness of the healthiness of the items, and increased amount of nutrition information plays a central role for consumers to identify those items that are healthier and those that are less healthy, more indulgent.

Consequently, it is hypothesized that an increase in the amount of menu nutrition information may enlarge the difference between solo and group diners' ordering intentions of healthy vs. less healthy, indulgent menu items. That is, the effect of the dining social context on the intention to order healthy vs. indulgent menu items will be strengthened by the increase in the amount of menu nutrition information such that both the intention to eat healthy (vs. indulgent) menu items of solo diners and the intention to eat indulgent (vs. healthy) menu items of group diners will become more prominent. Likewise, the argument was made (section 3.2.2.) that consumption orientation would mediate the effect of the dining social context on intentions to order healthy vs. indulgent menu items. We argue that the difference in menu item intentions rendered by divergent consumption orientations would also become more prominent as the amount of nutrition information increases, since an enhanced awareness of the relative healthiness of menu items could help facilitate the achievement of utilitarian versus hedonic consumption goals. Hence, we proposed the moderating effects of the amount of nutrition information (see Figure 3-1 for the conceptual model):

H4. *An increase in the amount of nutrition information will strengthen the effect of dining social context on the intention to order (a) healthy and (b) indulgent menu items.*

H5. *An increase in the amount of nutrition information will strengthen the indirect effect of dining social context on the intention to order (a) healthy and (b) indulgent menu items through a consumption orientation.*

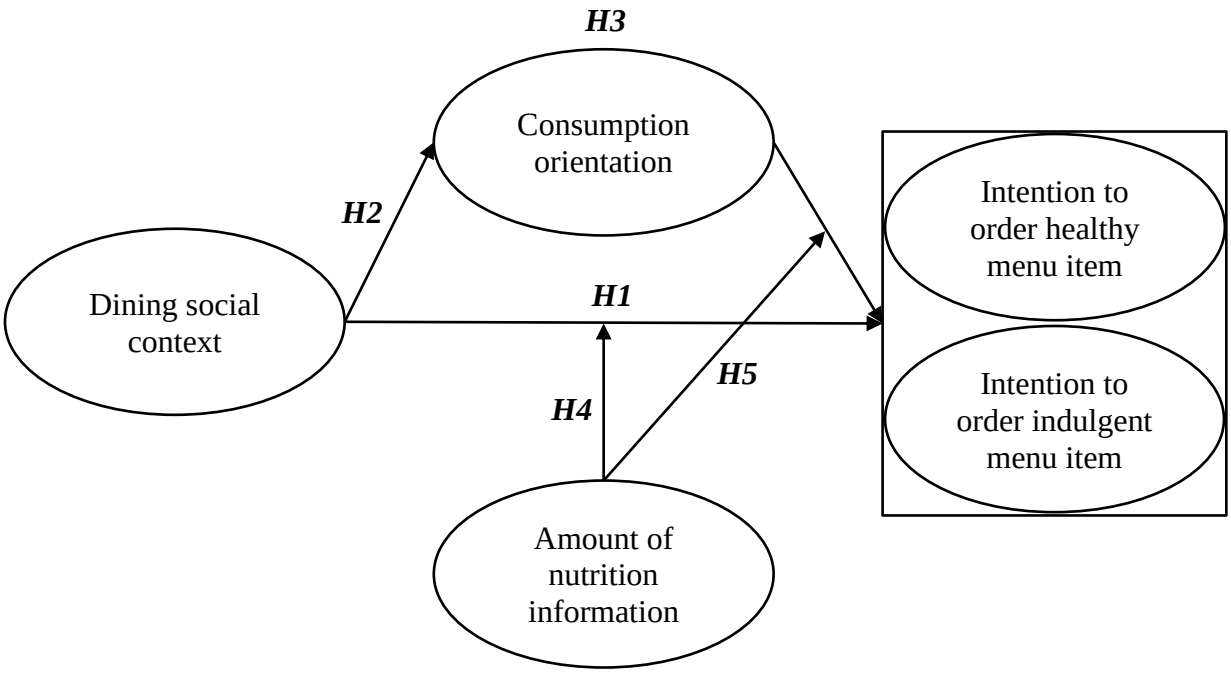

Figure 3-1. The conceptual model

3.3. Methods

3.3.1. Study design and data collection

A survey was developed using a 2 (dining social context: solo vs. group) × 3 (amount of nutrition information: none vs. calories vs. calories/fat/sodium), between-subjects, experimental design. The group dining context was set to a typical party size of three to four people (Kimes & Robson, 2004; Thompson, 2009), thus ruling out some special contexts such as possible romantic dining with only two people or a larger meeting with many people. For the amount of nutrition information conditions, the "no nutrition information" condition served as a control group. Calorie disclosure by itself was offered as a minimum nutrition information condition (per current U.S. menu regulations). For the enhanced nutrition information condition, total fats and sodium, which are of "particular public health concern" in the U.S. (U.S. Department of Health

and Human Services & U.S. Department of Agriculture, 2015), were presented in addition to calories.

The survey was launched online using Qualtrics software enabled for complete randomization of condition assignments. The initial survey was pilot tested by 16 respondents to check for the realism of scenarios, ease of use (i.e., ease of imagining oneself in the scenario), readability, overall logic and flow, grammar and formatting errors, and perceived healthiness of menu items. After addressing constructive comments from the pilot-test, data were collected at an online crowdsourcing platform widely used in social sciences studies (Amazon Mechanical Turk; Chandler & Shapiro, 2016). Small incentives were provided to all participants for their completion of the survey. Eligible participants were limited to U.S. adult consumers with restaurant dining experiences within the last three months to better target the population of interest.

3.3.2. Procedure and measurement

The survey was comprised of three sections: (1) experiment manipulations and measurement variables; (2) control variables and dining out experiences; and (3) demographics. More specifically, in the first part, participants were instructed to imagine having lunch at a nearby restaurant with a randomly assigned condition of eating by oneself or with a couple of others (see Table 3-1 for full descriptions). The scenario presented an ordinary lunch occasion at a casual-style restaurant to increase external validity in terms of generalizability and constrained several dining conditions to control for any potential confounders (e.g., day, mealtime, motive, and location). The description of the casual-style restaurant, average check size, and some examples of national chain restaurants were provided for effective manipulations. Following the scenarios, consumption orientation was measured by asking how they would describe the orientation of the restaurant meal described in the scenario with a 7-point scale (1 = completely utilitarian to 7 = completely hedonic; measure adopted from Ratner & Hamilton, 2010). In order to enhance participants' understanding, a utilitarian orientation was described as "functional, task-oriented, to satisfy basic food needs", and a hedonic orientation was described as "emotional, fun-oriented, to enjoy a pleasurable dining out experience" (Ratner & Hamilton, 2010; Ryu, Han, & Jang, 2010).

Table 3-1. Experiment manipulations of dining social context

Condition	Description
(common)	Imagine you are having an ordinary work/school day. Around lunch time you start to feel hungry.
Solo	Suppose that *today no one is available* to eat at the same time as you. You decide to have a meal *by yourself* at a nearby casual-style restaurant.
Group	Suppose that *others are available* to eat at the same time. You decide to have a meal *with 2-3 people* at a nearby casual-style restaurant.
(common)	The restaurant provides table service with an average check size of about $15. Examples of such restaurants might include Applebee's®, Denny's®, Chili's®, Olive Garden®, and IHOP®.

Next, one of three virtual restaurant menus with differing amounts of nutrition information was randomly presented to each participant: none vs. calories vs. calories/fat/sodium (see a sample menu in Figure 3-2). The menus were developed to induce more realistic responses. The menus contained information about entrée items, food descriptions, and nutrient content (except for the control menu), all of which were obtained from actual menus of nationwide casual-dining chains (e.g., Applebee's®, Denny's®, and Chili's®). The entrée menu items consisted of three healthy (grilled chicken salad, classic turkey sandwich, herb-grilled salmon) and three less healthy and more indulgent items (double cheeseburger, country-fried steak, Cajun shrimp pasta). In selection of the specific menu items, general popularity of the items in the real restaurants and previous use in relevant studies were considered (e.g., Chernev & Gal, 2010; Lee, Conklin, Cranage, & Lee, 2014). A variety of protein sources such as beef, poultry, and seafood were also presented to minimize food preference biases in menu item choices. Menu item nutrient content was confirmed by a registered dietitian in the U.S. and a licensed dietitian from another country, so that the healthiness level of menu items was clearly supported by the calorie and nutrient contents. Further, the nutritional differences were thought to be clearly presented on the menus as the less healthy, indulgent items were about double the calorie, fat, and sodium content of the healthy menu items (i.e., healthy items: ≤ 540 calories, ≤ 31g fat, ≤ 1,130 mg sodium vs. indulgent items: ≥ 1,190 calories, ≥ 59g fat, ≥ 2,260 mg sodium). The levels of calorie, fat, and sodium content of the less healthy, indulgent menu items also exceeded

half of the Daily Values based on a 2,000-calorie diet, which is used for general nutrition advice (i.e., 2,000 calories, < 65 g fat, < 2,400 mg sodium per day; FDA, n.d.), indicating a lower healthiness level of the foods. Prices were not shown and instructions stated that price should not be considered in decision making.

Figure 3-2. A virtual menu used in the study for the calories, fat, and sodium condition

Following the menu presentation, a manipulation check question was asked to determine whether participants were aware of the absence/presence of nutrition information, and types of nutrient information, if it was offered. Next, after participants were asked to select two of their favorite items from each of three healthy and three indulgent item sets, they were asked their intention of ordering (1) their favorite healthy item and (2) their favorite indulgent item among the six entrée items on the menu. Measurement included three statements for each ordering intention (e.g., "I intend to order this menu item"; Cronbach's $\alpha = .98$ for healthy item intentions and .99 for less healthy item intentions, confirming the successful reliability of the measures) on a 7-point Likert scale (Kwon & Jang, 2011).

In the second part of the survey, questions for attention checks, a control variable, and dining out experiences were provided. Attention check questions were included to sort out participants who were not carefully reading the questions. The level of agreement with five statements about nutrition involvement (Chandon & Wansink, 2007), measured on a 7-point scale (1 = strongly disagree to 7 = strongly agree), was used as a control variable. The level of nutrition involvement was statistically held constant across participants to rule out its confounding effect (e.g., eating healthy items regardless of solo vs. group dining conditions due to a high level of nutrition involvement). Statements included "I pay close attention to nutrition information" (Cronbach's $\alpha = .93$). Finally, in the last section of the survey, demographic information such as age, gender, race/ethnicity, education and income levels were collected.

3.4. Results

3.4.1. Sample characteristics

After excluding 34 participants due to incomplete surveys, short survey response times (< two min), and incorrect answers due to attention or manipulation check questions (such as whether cholesterol information was presented in the menu), 224 responses were used in the final sample. Accordingly, the six cell sizes ranged from 35 to 42 (Table 3-3). Respondents ranged from 19 to 75 years old ($M = 38.14$, $SD = 11.80$), were 50.9% female, and mostly Caucasians (82.1%; followed by 6.3% Asian, 5.8% African American, and 4.5% Hispanic or Latino). The largest category for education was a bachelor's degree (42.9%). Most commonly,

annual household income was $20,000 to $80,000 (66.0%; with a median between $50,000 and $80,000).

In regard to dining experience, most participants reported eating in casual dining restaurants one or more times per week (15.2%) or two to three times per month (42.4%). The vast majority (80.4%) also reported they had dined alone in a restaurant, with 36.7% saying one or more times per month (n = 180), reflecting the growing prevalence of solo dining in restaurants. Of those who had experienced solo dining, the most common types of restaurants for solo dining were fast-casual restaurants (66.7%) and fast-food restaurants (65.6%), followed by casual dining restaurants (41.7%) and fine dining restaurants (5.6%). The main reason for dining alone in restaurants was a personal desire for time alone (35.6%) or convenience (35.6%), rather than situational contexts where no one was available to dine with at the moment (25.0%).

In general, participants were interested in nutrition information (M = 4.89; $t(223) = 9.32$, $p < .001$). This variable was controlled in the subsequent data analyses. In regards to the perceived adequacy of the provided amount of nutrition information (1 = *completely inadequate*, 7 = *completely adequate*), participants who saw labeling that included calories, fat, and sodium perceived the nutrition information to be significantly more adequate (M = 5.96, SD = 1.29) than participants who only saw calorie information (M = 4.84, SD = 1.59; $t(144) = -4.73$, $p < .001$). Among the three healthy and three indulgent menu items, participants most preferred the grilled chicken salad (34.8%) and the double cheeseburger (45.5%), respectively.

3.4.2. Intentions to order healthy and indulgent menu items

3.4.2.1. Dining social context

The results of one-way multivariate analysis of covariance (MANCOVA) showed that intentions to order healthy and less healthy, indulgent menu items did not differ significantly by dining social context alone (Wilks' $\Lambda = .99$, $F(2, 220) = .07$, $p = .94$). The patterns revealed the proposed directions such that solo diners had greater healthy item intentions and group diners had greater indulgent item intentions, but the mean differences were minimal (i.e., healthy item intentions: M_{solo} = 5.82 vs. M_{group} = 5.76; indulgent item intentions: M_{solo} = 4.64 vs. M_{group} = 4.67). Thus, ***H1(a)*** and ***H1(b)*** suggesting the single effect of dining social context on healthy and indulgent item intentions, respectively, were not supported.

3.4.2.2. Mediation through consumption orientation

The results of the independent group *t*-test showed that the consumption orientation varied significantly across dining social context ($t(222) = -3.75$, $p < .001$; Table 3-2). As proposed, solo diners were more oriented to utilitarian consumption in restaurants ($M = 3.52$, $SD = 1.65$), while group diners were more oriented to hedonic consumption in restaurants ($M = 4.32$, $SD = 1.52$). Thus, ***H2*** suggesting the effect of dining social context on consumption orientation was supported.

Table 3-2. Descriptive statistics and independent t-test results of consumption orientation

Dependent measure	**Experiment condition**	***n***	***Mean***	***SD***	***t***
Consumption orientation	Solo	107	3.52	1.65	-3.75***
	Group	117	4.32	1.52	

Note. Scale: 1 = completely utilitarian to 7 = completely hedonic (Ratner & Hamilton, 2010)
****p < .001.*

Next, mediation analyses of consumption orientation were conducted using the PROCESS syntax macro (Hayes, 2013; PROCESS model 4). The macro computed bias-corrected bootstrap confidence intervals for indirect effects from 10,000 bootstrap samples. The results of the mediation analysis on the effect of dining social context on healthy item intentions showed that the consumption orientation was not a significant mediator (indirect effect = .003, 95% CI = -.10 to .09). Thus, ***H3(a)*** suggesting the indirect path of dining social context on healthy item intentions through consumption orientation was not supported.

On the other hand, the consumption orientation significantly mediated the effect of dining social context on indulgent item intentions (indirect effect = .18, 95% CI = .05 to .39). Figure 3-3 presents the path coefficients, standard errors, and significance levels of the mediation mechanism. As expected, the mediation indicated that group diners had a greater intention to order indulgent items compared to solo diners through their stronger hedonic consumption orientation; or, conversely, solo diners had a lower intention to order indulgent items than group diners due to their less hedonic (more utilitarian) consumption orientation. Thus, ***H3(b)*** suggesting the mediating role of consumption orientation in the effect of dining social context on indulgent item intentions was supported.

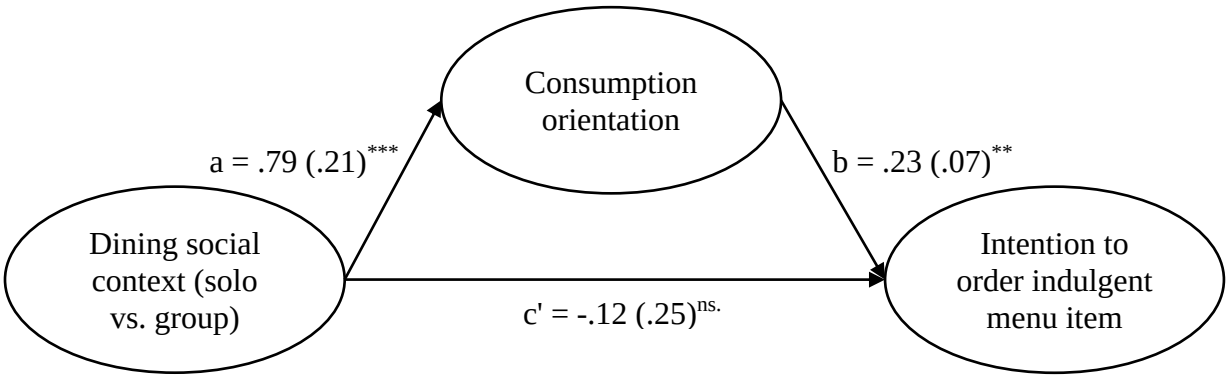

Figure 3-3. The indirect effect of dining social context on indulgent item intentions through consumption orientation

3.4.2.3. Moderation of amount of nutrition information

The results of two-way MANCOVA showed that there is evidence that intentions to order healthy or indulgent menu items would differ by the interaction of dining social context and the amount of nutrition information (Wilks' Λ = .96, $F(4, 432) = 2.22$, $p = .066$). Therefore, two-way univariate analyses of covariance (ANCOVA) on each dependent measure was conducted to further explore the interactions.

The ANCOVA results of healthy item intentions showed that the interaction of dining social context and the amount of nutrition information was significant ($F(2, 217) = 4.02$, $p = .019$; Table 3-3 and Figure 3-4). More specifically, solo diners had a significantly greater intention to order healthy menu items compared to group diners when calories, fat, and sodium information were presented on the menu ($M_{solo} = 6.12$ vs. $M_{group} = 5.37$; $t(217) = 2.38$, $p = .018$). In comparison, the healthy item intentions of solo and group diners were not significantly different from each other when only calorie information was provided ($M_{solo} = 5.83$ vs. $M_{group} = 5.86$; $t(217) = -0.11$, $p = .91$) as well as when no nutrition information was provided ($M_{solo} = 5.52$ vs. $M_{group} = 6.02$; $t(217) = -1.60$, $p = .11$). Thus, ***H4(a)*** suggesting the strengthening role of the amount of nutrition information on the effect of dining social context on healthy item intentions was supported.

Table 3-3. Adjusted means and standard errors of healthy and indulgent item ordering intentions

Dependent measures	No information		Calories		Calories/Fat/Sodium	
	Solo	Group	Solo	Group	Solo	Group
Healthy item ordering intentions	5.52 (.23)	6.02 (.22)	5.83 (.23)	5.86 (.21)	6.12 (.23)	5.37 (.22)
Indulgent item ordering intentions	5.09 (.30)	4.60 (.29)	4.41 (.30)	4.61 (.28)	4.41 (.30)	4.81 (.30)
n	36	38	35	42	36	37

Notes. Standard errors in parentheses; Scale: 1 = Strongly disagree to 7 = Strongly agree.

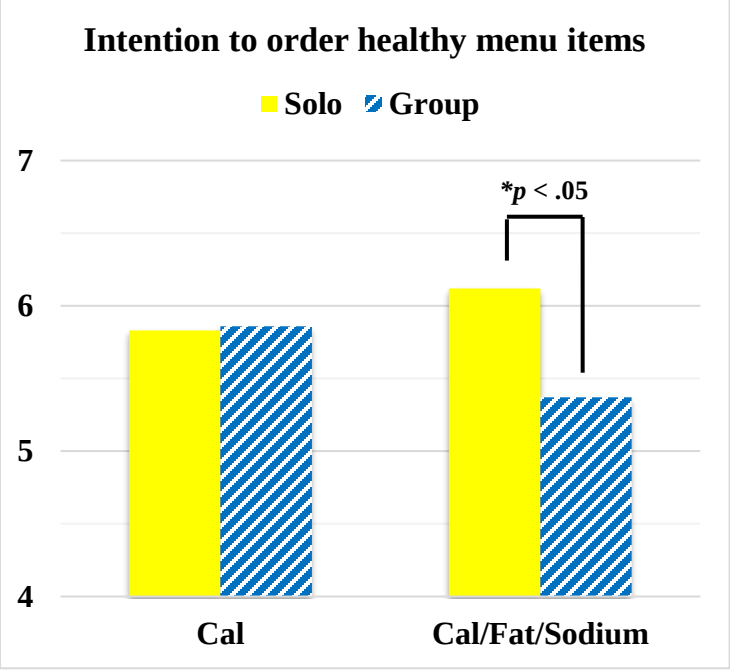

Figure 3-4. The interaction effect of dining social context and the amount of nutrition information on healthy item intentions

On the other hand, the patterns of less healthy, indulgent item intentions of solo and group diners across the amount of nutrition information conditions were consistent with the proposed directions, meaning that group diners showed greater intentions to order indulgent items compared to solo diners as the amount of nutrition information increased (Table 3-3). However, the interaction effect failed to attain statistical significance ($F(2, 217) = 1.24$, $p = .291$). Hence, ***H4(b)*** suggesting the facilitating role of the amount of nutrition information on the effect of dining social context on indulgent item intentions was not supported.

3.4.2.4. Moderated mediation analyses

Lastly, moderated mediation analyses in which consumption orientation was a mediator and the amount of nutrition information was a moderator for each of the healthy and indulgent menu item intentions were conducted using the PROCESS syntax macro (Hayes, 2013; PROCESS model 15). However, the results showed that indices of moderated mediation for both healthy and indulgent item intentions were not statistically significant (i.e., 95% confidence intervals contained zeros), indicating that the mediations through consumption orientation did not significantly vary across the different amounts of nutrition information. Therefore, ***H5(a)*** and ***H5(b)*** suggesting the stronger indirect effects through consumption orientation with an increased amount of nutrition information were not supported. In other words, the indirect effects of dining social context on healthy and indulgent item intentions through consumption orientation were consistent or did not vary significantly across the amount of nutrition information conditions.

3.5. Discussion and Implications

Driven by the increasing popularity of solo dining, this study examined the effect of dining social context (solo vs. group dining) on healthier and less healthy, indulgent menu item choices in casual dining restaurants based on the self-control dilemma and temporal construal theory. Furthermore, the mediating role of consumption orientation (utilitarian vs. hedonic) and the moderating role of the amount of menu nutrition information in the decision-making process were also examined. The findings showed that: first, solo diners are more likely to be oriented to a utilitarian consumption, while group diners are more likely to be oriented to a hedonic consumption; and second, controlling for the levels of health-consciousness and nutrition involvement, solo diners are more likely to eat healthier foods in restaurants than group diners. More specifically, solo (vs. group) diners showed (1) lower (vs. higher) intentions to order less healthy, indulgent items due to a utilitarian (vs. hedonic) consumption orientation, irrespective of menu nutrition information conditions, and (2) higher (vs. lower) intentions to order healthy items when the menu included calorie, fat, and sodium information about the menu items.

The findings offer useful information to both researchers and managers by examining the menu-decision making processes of solo and group diners, particularly regarding healthy vs. indulgent menu items, by exploring the roles of consumption orientation and nutrition

information on menus. Theoretically, the findings contribute to an enhanced knowledge of solo diners' menu-decision making processes compared to group diners in restaurants. Previous studies on solo dining examined only solo diners' restaurant visiting intentions (Her & Seo, 2018), general dining experiences and feelings (Danesi, 2012; Heimtun, 2010; Hwang et al., 2018; Lahad & May, 2017), and anticipated satisfaction (Shin et al., 2018). This study compared solo diners with group diners and showed how the dining social context leads to different menu choices with varying levels of healthiness.

Specifically, findings confirmed that solo diners seek more utilitarian consumption experiences, while group diners seek more hedonic consumption experiences, consistent with prior hospitality and consumer studies (Ponnam & Balaji, 2014; Ratner & Hamilton, 2015). Furthermore, the activation (vs. deactivation) of hedonic orientation in group (vs. solo) diners subsequently resulted in stronger (vs. weaker) intentions of ordering less healthy, indulgent menu items, supported by healthy food choice studies (van Beek et al., 2017; Werle et al., 2015). In regard to the amount of menu nutrition information conditions, the disclosure of more nutrition information such as fats and sodium in addition to calories strengthened the effect of dining social context on healthy menu item intentions (i.e., a stronger intentions of solo diners and less intentions of group diners) compared to no or only calorie information conditions, congruent with previous nutrition labeling studies highlighting the differential impacts of nutrition labeling for different consumers (Kozup et al., 2008; Wei & Miao, 2013; Yoon & George, 2012). Specifically, the finding that disclosing more nutrition information leading to more healthy choices for some consumers and less healthy choices for the other consumers is similar to Byrd et al. (2018), which found that disclosing more nutrition (sodium) information led to healthier (low sodium) choices for consumers with a positive taste intuition and less healthier (high sodium) choices for consumers with a negative taste intuition. This finding may be of importance to the public health studies and practices.

It is also important to note the differential impacts of eating alone on healthy eating results depending on the contexts. That is, several health studies have pointed out unhealthy dietary behaviors (e.g., skipping the meal), unhealthy weight status (i.e., overweight or underweight), or increased likelihood of abdominal obesity and metabolic syndrome among men who frequently eat alone (Kwon, Yoon, Min, Lee, & Jeon, 2018; Tani et al., 2015). Other studies reported mixed associations between healthy or unhealthy dietary intakes and the elderly

individuals living alone who also likely eat alone frequently (Charlton, 1999; Donkin, Johnson, Morgan, Neale, Page, & Silburn, 1998; Pearson, Schlettwein-Gsell, Van Staveren, & de Groot, 1998). It may be also possible that solo diners with a primary goal of convenience would rather choose quick-service restaurants as a dining place and eat more processed fast foods that are less likely to be healthy. However, using self-control concepts, we showed that people are more likely to make healthier choices when dining alone than dining together when eating alone occurs in a full-service restaurant context. This finding is congruent with an interview study which showed that people associates healthy eating in restaurants with solo than group dining due to an increased self-control ability when alone (Takeda & Melby, 2017).

On the other hand, the findings also revealed noteworthy non-differences. First, while the results were consistent with the hypothesized directions (i.e., solo diners' stronger preferences for healthy items, group diners' stronger preferences for indulgent items), the single effect of dining social context was not statistically significant in terms of the menu item ordering intentions of solo and group diners. We found that this effect was in fact qualified by the significant interaction between dining social context and the amount of nutrition information, and thus, it is essential to consider the nutrition information conditions in the interpretation of the findings. More specifically, the effect of dining social context on healthy item intentions was contingent upon the amount of nutrition information conditions such that differences in ordering intentions were not statistically significant until the menu provided calories, fats, and sodium information. That is, a greater amount of nutrition information on the menu allowed solo diners to accomplish their healthier choice goal as compared to group diners. This finding may be a concern for the current nutritional labeling policy in restaurants (i.e., mandatory calorie labeling in chain restaurants; FDA, 2019) in that the provision of only calorie information, including no information, may be not enough to inform consumers of the healthiness or unhealthiness values of the meals they intend to have.

Second, it is important to note that the mechanism leading to an intention to select healthy menu items is different from the mechanism that leads to an intention to select less healthy, more indulgent menu items, as well as the interactions of the nutrition information with these mechanisms. Consumption orientation was only a significant mediator for the effect of dining social context on indulgent menu item intentions, but not for the effect on healthy menu item intentions. In other words, a hedonic (vs. utilitarian) consumption orientation led to more

(vs. less) indulgent item intentions but a utilitarian (vs. hedonic) consumption orientation did not necessarily lead to more (vs. less) healthy item intentions. On the other hand, the amount of nutrition information only affected the impact of dining social context on healthy menu item intentions, not indulgent menu item intentions. Thus, these findings provide a new understanding beyond earlier marketing studies that considered the decision-making processes between healthy vs. indulgent foods as merely dichotomous and opposite (e.g., Fedorikhin & Patrick, 2010; Werle et al., 2015). The findings especially point to the need for more research in healthy vs. indulgent food decisions using different mechanisms for each of the selection of healthy and indulgent foods. Lastly, the indirect effects of dining social context on healthy and indulgent item intentions through consumption orientation were stable across the amount of nutrition information conditions. Thus, the finding notes that, while an increase in the amount of nutrition information helps the healthy item decisions of consumers with preferences for healthy menu items (i.e., solo diners in this study setting), it does not necessarily facilitate the healthy vs. indulgent choices of utilitarian vs. hedonic consumption-oriented consumers (e.g., hedonic consumption-oriented group diners pursuing indulgent items).

For restauranteurs, findings highlight the relative utilitarian values of solo diners in comparison to the relative hedonic values of group diners, subsequent indulgent meal preferences of group diners in general, and healthy meal preferences of solo diners when more nutrition information is provided on menus. Restauranteurs thus can obtain operational insights from the findings into the impacts of the voluntary labelling of additional nutrition information beyond calories on restaurant menus or their mandatory labelling in certain areas (e.g., fat, sodium, and carbohydrates in Oregon State; Oregon Health Authority, n.d.). It is said that the best restaurant menus are the ones that provides a variety of choices to meet both healthy and indulgent meal interests of diverse consumers. However, a focus on healthier menu offerings might be particularly valuable for restaurants that specifically expect a higher percentage of solo diners, such as those located in or close to airports and conference centers for solo business travels and university towns for routine convenience solo diners, to fulfill their utilitarian and healthy eating goals. The disclosure of more nutrition information would be a plus for the segment to clearly identify the healthiness of the meals and to show more preferences for those items. On the other hand, restaurants primarily targeting couples, families, and friends, such as those located in holiday travel destinations, amusement parks, and higher-end casual dining

restaurants for holiday or celebratory dining, may largely benefit from a wide range of indulgent menu offerings that can satisfy the hedonic consumption goals of the group diners. The provision of calorie or additional nutrition information on menus may possibly draw the group diners' attention on indulgent menu items. Thus, each restaurant should decide on the amount of nutrition information they wish to provide on menus depending on the customer mix of group to solo diners for maximum profits as well as the government regulations.

3.6. Limitations, Directions for Future Research, and Conclusion

Several limitations need to be noted in understanding the findings of this study. First, vegetarian menu options were not considered in this study. Considering that only 5% of American adults identify themselves to be vegetarians (Hrynowski, 2019), animal protein sources were used in our menu. However, as vegetarian meals are growing in popularity and respect for diverse food preferences is important, it would be worth examining how the inclusion of vegetarian menu options could impact the current findings. Second, while this study limited itself to the setting of a casual dining restaurant to increase the internal validity of the study, whether healthy eating outcomes vary with other types of restaurants is worth further investigation. Lastly, future studies may wish to vary the composition of dining partners in group dining and examine how it impacts the differences between solo and group dining. While this study set the group dining context to eating with two to three, generalized dining partners based on the most common party size in restaurants, other research may wish to focus on group dining with larger groups or different dining contexts such as romantic couples vs. business dining groups vs. family groups. In these contexts, social norms or impression management mechanisms may be of consideration to determine group diners' varying preferences.

In conclusion, while one might consider solo dining as unhealthy and negative experiences due to a lack of the joy of dining with company, this study showed that solo dining may rather lead to healthier choices through a greater self-control and a utilitarian, goal-oriented mindset. Plus, the solo mealtime may be blissful with an unexpected joy of dining with an important but neglected company: yourself!

3.7. References

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CHAPTER 4. STUDY 2: OFF-PREMISE RESTAURANT DINING: THE IMPACTS OF DINING SOCIAL CONTEXT AND SELF-DETERMINATION ON SOLO AND GROUP DINERS' INTENTIONS

4.1. Introduction

According to a 2018 consumer trends report, consumers order restaurant food for carryout and delivery (58%) more frequently than dine-in (43%; Technomic, 2018). This pattern that off-premise dining is more popular than on-premise dining holds true across all generations, except Baby Boomers who order more on-premise food but still order off-premise food 49% of the time (Technomic, 2016). While such off-premise sales were once viewed as the purview of quick service restaurants driven by the growing popularity of drive-thru services, curbside pickup has now become "one of the fastest-growing areas" to generate sales in casual dining restaurants (Blackiston, 2014; Warner, 2006). The huge growth of third-party delivery platforms such as Grubhub, DoorDash, and Uber Eats as well as in-house delivery services also support the boom in restaurant food deliveries (CHD Expert, 2018; McCane Foods, 2019; Romeo, 2019). Ultimately, by 2023, total off-premise restaurant sales are predicted to exceed $300 billion, according to the "2018 Takeout, Delivery and Catering 5-Year Outlook for North America" study (CHD Expert, 2018).

Thus, an important question becomes when and why consumers want takeout or delivery rather than dine-in meals. Evidence suggests that solitary consumers may prefer off-premise dining more than other consumers due to their anxiety and lower interest in on-premise dining (Danesi, 2012; Heimtun, 2010; Ratner & Hamilton, 2015; Pliner & Bell, 2009). The relatively utilitarian orientation of solo diners compared to the relatively hedonic orientation of group diners (Her & Almanza, 2018) also suggests that consumers dining alone may seek convenience and polychronicity more than consumers dining with others, and this may influence off-premise intentions. Lastly, drawing from the self-determination theory (Ryan & Deci, 2000), an additional question might be whether intentions vary when the decision to dine solo or in a group was made by oneself or by the situational context. Since studies have not examined the pre-existing conditions of solo or group dining, it is important to address the role of internal vs. external motivations on the processes in order to understand the whole picture. In sum, this study examines the effect of dining social context (alone vs. with others) on off-premise intentions

through three mediators, namely, convenience seeking, polychronicity seeking, and anticipated enjoyment of on-premise dining, and the moderating role of self-determination (self-determined vs. context-determined) on the three mediating paths (i.e., whether the indirect effects of dining social context on off-premise intentions would vary due to the self-determination conditions).

4.2. Literature Review

4.2.1. Mediator 1: Convenience seeking

Convenience is defined as the nonmonetary cost of time and effort invested in purchasing goods or using services, not the characteristics or attributes of the products (Berry et al., 2002; Brown, 1990; Seiders, Voss, Godfrey, & Grewal, 2007). In the retail and service industry, convenience could be characterized by such terms as "quick-and-easy", "ease of use", and "speed" (Seiders, Berry & Gresham, 2000) and involves three types of effort in transactions such as physical, cognitive, and emotional (Mohr & Bitner, 1995). More specifically, Seiders et al. (2007) developed a multidimensional service convenience scale, SERVCON, by defining five dimensions of convenience in the different stages of consumption activities: decision convenience in deciding certain brands; access convenience in accessing the purchase sites; benefit convenience in the ease of finding and evaluating certain offerings; transaction convenience in the quick and easy payment; and postbenefit convenience in the return and change processes after purchase. In the food studies, convenience is also considered an important factor for food choices based on the food choice process model (Furst et al., 2006).

Dining at a full-service restaurant means that consumers would need to invest time and effort to get to the restaurant (vs. delivery), wait for the host to seat them, wait for the server to place the beverage and food orders (usually separately), to receive the check after completing food plates, to pay the check (and separately to receive the card back if paid by cards), and to return to their place (vs. delivery). In comparison, the process of ordering, paying, and receiving carryout or delivery food involves less time investment and efforts and the gap becomes even greater when using the online ordering methods or mobile applications which generally show the estimated pickup or delivery time (for example, a half or more Generation Z and millennial consumers already showed intentions to place carryout orders mobile; Failla, 2016). It is also possible that consumers dining in restaurants tend to linger more because they enjoy the

aesthetics, ambiance, and service experiences that are exclusive in restaurant dining compared to eating at home or workplace.

Humans are social animals. According to the Social Baseline Theory, the human baseline requires being in a social network; and thus, people feel more effort when conducting tasks alone compared to when they are in a social setting (Beckes & Coan, 2011). For example, people evaluated the same hills as less steep when they simply stood with a friend (Schnall et al., 2008). Following this theory, it was reasonable to assume that the need for effort-reduction would naturally be higher for solo diners who are alone compared to group diners who are with company. On the other hand, the literature of social facilitation of eating suggested longer dining durations for group diners compared to those of solo diners because of the social component in group dining (Herman, 2015; Hetherington, Anderson, Norton, & Newson, 2006). In this regard, solo diners might be further motivated for convenience (i.e., reducing time and efforts) involved with completing such short-time meals. In fact, interviews of Danesi (2012) confirmed that people disliked negative feelings experienced when eating alone, and thus were more motivated to finish their meals quickly and less motivated to have time-extended, complicated meals even when at home; in comparison, people reported they had more relaxed and longer mealtimes when eating with others and having pleasurable conversations. In addition, solo dining is often associated with time-constrained circumstances (e.g., too busy to match eating time with others; Devine et al., 2009; Jabs & Devine, 2006; Marshall & Anderson, 2002; McLynn, 2014). Considering that time scarcity was associated with more consumption of convenience and ready-to-eat foods (Jabs & Devine, 2006), the finding again suggested more likelihood of solo diners' convenience-seeking when under time pressure. Taken together, the following hypotheses were proposed:

H1. *Convenience Seeking (CS) will be stronger for solo (vs. group) diners.*

H2. *Convenience Seeking (CS) will mediate the effect of dining social context on off-premise dining intentions, such that off-premise dining intentions will be stronger for solo (vs. group) diners through CS.*

4.2.2. Mediator 2: Polychronicity seeking

People may spend their time engaging in only one activity at a time (i.e., monochronic time use) or by engaging in several activities simultaneously (i.e., polychronic time use;

Kaufman, Lane, & Lindquist, 1991). An example of polychronic time use is reading a book or watching a video while dining to "use their time resources to accomplish several goals at the same time" (Kaufman et al., 1991, p. 392). This so-called multitasking ability may be more important consideration for solo diners than group diners. That is, while group diners may relatively focus more on the eating itself (while having conversations), solo diners may relatively be more likely to read, watch, and text in addition to eating. The greater polychronicity seeking of solo diners may be because they want to compensate for feelings of loneliness associated with eating alone by engaging in other activities. A body of social psychology literature confirmed that solitude is inherently associated with loneliness because of the human desire for social belonging (Baumeister & Leary, 1995; Coplan & Bowker, 2014). In this regard, studies showed that singles, who had more solitary time than people in other types of households, spent more time viewing television to cope with loneliness (Donthu & Gilland, 2002), and lonely individuals used mobile phones and the Internet more often than others (Park, 2005). In the context of solo vs. group dining, an observational study showed that more solo diners used laptops and mobile phones while eating compared to group diners (Her et al., 2017). These findings altogether support the view that solo diners may want to do other activities during dining to reduce their loneliness and fill their solitary time.

Also, studies documented that solo consumers fear how others would judge them in their public solo activities (Her & Seo, 2018; Ratner & Hamilton, 2015). However, when people imagined that they were reading while drinking a coffee at a coffee shop alone, compared to when people imagined that they were only drinking a coffee at a coffee shop alone, their worries of being negatively judged by others were lower, leading to a greater interest in the solo activity (Ratner & Hamilton, 2015). Thus, solo diners may seek polychronicity while dining alone to reduce their feelings of being negatively viewed by others. Lastly, as noted in earlier section (4.2.1.), solo dining occasions frequently occur because of time-constrained situations. Studies reported that people with time scarcity pursued multiple tasks at the same time (Godbey, Lifset, & Robinson, 1998; Jabs & Devine, 2006). Another interview study also showed that people were more polychronic-oriented in time-pressured circumstances; for example, people with time pressure conditions reported that they frequently choose convenience foods while at work and on the way home from work to make the most of time resources (Cotte, Ratneshwar, & Mick, 2004).

Therefore, it was hypothesized that solo diners might be more polychronistic while dining compared to group diners who may be more monochronistic related to the mealtime enjoyment with dining company. In fact, depending on the type of dining partners, engaging in other activities while dining together can also be an impolite behavior, further reducing group diners' likelihoods of seeking polychronicity. Considering the relatively limited ability to engage in multiple different tasks in restaurants compared to people's home or workplaces, the following hypotheses were proposed:

H3. *Polychronicity Seeking (PS) will be stronger for solo (vs. group) diners.*

H4. *Polychronicity Seeking (PS) will mediate the effect of dining social context on off-premise dining intentions, such that off-premise dining intentions will be stronger for solo (vs. group) diners through PS.*

4.2.3. Mediator 3: Anticipated enjoyment of on-premise dining

Anticipated emotions are "the prospect of feeling positive or negative emotions after performing or not performing a behavior" (Rivis, Sheeran, & Armitage, 2009, p. 2987), and are significant determinants of subsequent behavioral decisions (e.g., Hur & Jang, 2015; Loewenstein & Lerner, 2003). Therefore, understanding anticipated emotions when dining inside a restaurant versus ordering take out or delivery would help identify subsequent behavioral decisions about which consumption mode (on- vs. off-site) to choose.

Restaurant dining is widely viewed as a hedonic activity, which people tend to enjoy more when they are with others (Raghunathan & Corfman, 2006; Ratner & Hamilton, 2015). Unlike group diners, for solo diners, Her and Seo (2018) showed that the anticipated loneliness and anticipated negative evaluations from others were critical inhibitors of dining alone in restaurants. More specifically, loneliness is a negative aspect of being alone and caused by the lack of desired social connections (Arpin, Mohr, & Brannan, 2015; Goodwin & Lockshin, 1992; Perlman & Peplau, 1981). Due to the lack of dining partners and social interaction, solo diners may expect lonely feelings while dining in restaurants surrounded by other parties dining in a group (Her & Seo, 2018). Pliner and Bell (2009) also support the presence of negative emotions, such as loneliness, as the primary reason for not wanting to dine alone in restaurants.

In addition, the important meaning of commensal eating throughout human history and culture is reinforced by anthropology and sociology studies (Danesi, 2012; Pliner & Bell, 2009;

Sobal & Nelson, 2003). Accordingly, literature has shown that solo diners in restaurants are often stereotyped as individuals lacking in social ability (Danesi, 2012; Goodwin & Lockshin, 1992; Heimtun, 2010), and thus consumers were less interested in engaging in solo dining activities when they expect others might make negative inferences about them (Ratner & Hamilton, 2015). The anticipated negative evaluation was even stronger when group diners dominated the restaurant (Her & Seo, 2018). Conversely, group diners exhibited less anxiety related to others' inferences and greater interests in restaurant dining (Ratner & Hamilton, 2018).

In this respect, it was proposed that solo diners may anticipate more loneliness and negative evaluations from others when dining in restaurants compared to group diners. In addition, the consumption of restaurant meals in private offices or homes may help attenuate the anticipation of lonely feelings and negative assessments from others because there may be fewer group diners around and polychronic time use may counteract the loneliness as well as negative inferences from others (Ratner & Hamilon, 2015). Thus, if solo diners anticipate less enjoyment from on-premise dining compared to the groups, it would likely decrease their intention to dine in restaurants and instead, would increase their intention to take the food out or order delivery. Taken altogether, these hypotheses were proposed:

H5. *Anticipated Enjoyment (AE) will be weaker for solo (vs. group) diners.*

H6. *Anticipated Enjoyment (AE) will mediate the effect of dining social context on off-premise dining intentions, such that off-premise dining intention will be stronger for solo (vs. group) diners through AE.*

4.2.4. Moderator: Self-determination

Self-determination theory is an approach to human actions that distinguishes a perceived locus of causality based on whether the behavior was motivated by oneself or by external conditions (Ryan & Deci, 2000). This framework has been adopted by myriad consumer behavior studies ranging from luxury product purchases (Truong & McColl, 2011), to studies about relational behaviors towards firms (Dholakia, 2006), consumption adequacy (Martin & Hill, 2012), customer loyalty (Lin, Tsai, & Chiu, 2009), and sustainable food choices (Schosler, Boer, & Boersema, 2014). In the current study setting, whether the dining decision was made because of their own desire to do so (i.e., self-determined) or because of the context that induced

them to do so (i.e., context-determined) may also drive differences in the effect of dining social context on off-premise dining intentions.

In regard to group dining, it was discussed that they are more associated with dining enjoyment and having fun due to the social companionship. However, studies revealed that context-determined individuals typically show less interest, excitement, and enjoyment in the activities than self-determined individuals (Ryan & Deci, 2000). Therefore, context-determined group diners (e.g., necessary business meals) may be less likely to enjoy the social setting of the meal and have fun as much as self-determined group diners (e.g., voluntary group meals with friends). Due to the reduced emphasis on social and hedonic components of context-determined group diners, compared with self-determined group diners, they would follow more similar patterns as solo diners, characterized by stronger convenience and polychronicity seeking tendencies as well as less anticipated enjoyment of on-site dining. In solo dining, however, it was hypothesized that self-determination might not change the levels of mediators as much as group dining because solo meals still lack the social component (regardless of self-determination conditions) which is critical in dining motives and behaviors. Therefore, it was expected that the differences between solo and group diners in the three mediators would be diminished in the context-determined condition. In a similar vein, the moderating effects of self-determination on the three mediation paths were also likely such that the mediations between dining social context and off-premise dining intentions would be less salient in the context-determined condition. Therefore, the following last hypotheses were proposed (Figure 4-1):

H7. *The difference in (a) CS, (b) PS, and (c) AE between solo and group diners will be attenuated in the context-determined (vs. self-determined) condition.*

H8. *The difference in off-premise dining consumptions between solo and group diners through (a) CS, (b) PS, and (c) AE will be attenuated in the context-determined (vs. self-determined) condition.*

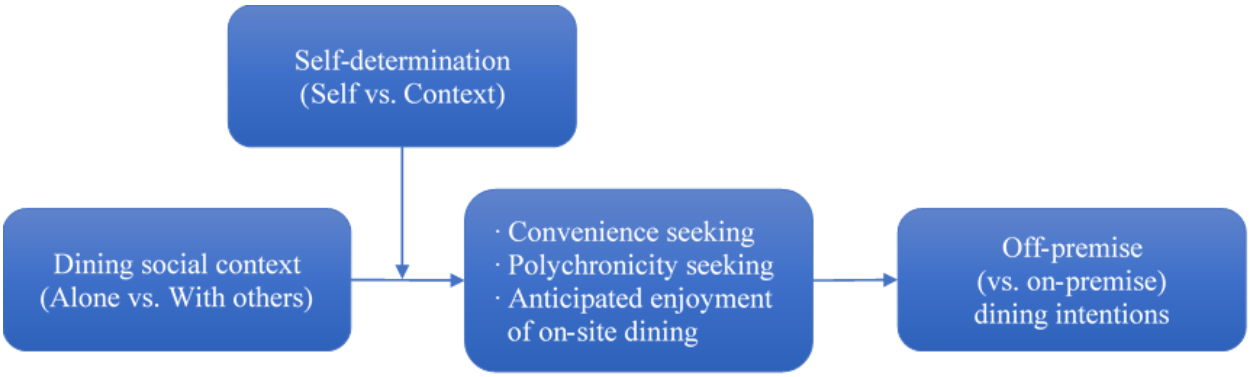

Figure 4-1. Proposed model

4.3. Methods

4.3.1. Research design and sample

This study used a 2 (dining social context: alone vs. with others) × 2 (self-determination: self-determined vs. context-determined) between-subjects experimental design. The experimental conditions were manipulated using scenarios in an online survey, launched with Qualtrics software. The scenarios were pre-tested (n = 80) to ensure their successful manipulations and realism. A total of 439 participants were recruited from an online crowdsourcing platform (Amazon Mechanical Turk), in which reliable social sciences data can be collected from a diverse nationwide sample (Buhrmester, Talaifar, & Gosling, 2018; Chandler & Shapiro, 2016). Small incentives were provided to all participants upon their participation of the study. Eligible participants included those that had dined in a casual dining restaurant within the past three months. After removing those responses that were incomplete, took too little or long time to complete, or failed attention checks, 399 responses (ages 35.8 ± 10.7; 41.9% female; 51.1% bachelor's degree; 74.2% White) remained for analyses. About half of the respondents ate in casual dining restaurants (49.1%) and ordered takeout/delivery food from casual dining restaurants (51.4%) at least once a week.

4.3.2. Procedure

Participants were randomly assigned to one of four scenarios, which started by asking respondents to visualize a typical working/studying day around mealtime. In the self-determined

conditions, scenarios stated that, although participants could have a meal with their friends or colleagues (vs. by themselves), they decided to eat alone (vs. with friends or colleagues) because they wanted to do so. In the context-determined conditions, scenarios stated that, although participants wanted to have a meal with their friends or colleagues (vs. by themselves), they were forced to eat alone (vs. with friends or colleagues) because none of their companions were available (vs. the mealtime was in the middle of the group meeting). Then, all participants imagined ordering food from a local, casual dining restaurant where they could either eat inside the restaurant or take out, pick up, or have the food delivered. After the scenarios, participants were asked questions that included a manipulation check, mediating and dependent measures, attention checks, as well as questions about the scenario's realism and ease of use (i.e., how easy it was for them to project them in the scenario), their restaurant dining experiences, and demographics.

4.3.3. Measures

Table 4-1 summarized the measurements used for the three mediator variables and a dependent variable of this study. In addition, the manipulation of self-determination was checked by asking participants about their agreement with the statements regarding whether the decision to eat by themselves (vs. with others) in the scenario was made of their own free will (1 = strongly disagree, 7 = strongly agree; Ryan & Deci, 2000). To further explore polychronicity seeking, a list of activities consumers might typically engage in during a mealtime (e.g., texting, reading, and watching videos) were provided. Participants were asked to indicate whether they would prefer to focus on the solo or group meal itself while they are eating or, if not, which particular activities they would like to engage in during the meal (multiple choices). Realism and ease of use were measured by asking how realistic the scenario was (1 = Not at all realistic, 7 = Very realistic) and how easy it was for participants to picture themselves in the scenario (1= Not at all easy, 7 = Very easy; Hwang, Shin, & Mattila, 2018), respectively.

Table 4-1. Measurements used for mediator and dependent variables

Variable	Measure	Scale	Cronbach's α	Reference
Convenience seeking	Four items (e.g., "I want to spend as little time as possible having a meal")	1 = Strongly disagree, 7 = Strongly agree	α = .84	Convenience orientation scale (Candel, 2001)
Polychronicity seeking	Four items (e.g., "I would typically do other activities at the same time")	1 = Strongly disagree, 7 = Strongly agree;	α = .94	Polychronic-monochronic tendency scale (Lindquist & Kaufman-Scarborough, 2007)
Anticipated enjoyment of on-premise dining	One item ("If I eat inside the restaurant, it would be …")	1 = Not at all enjoyable, 7 = Very enjoyable	n/a	(Ratner & Hamilton, 2015)
Off-premise dining intentions	Three items (e.g., "The probability that I would consider taking out the food or ordering delivery, rather than eating in the restaurant is…")	1 = Very low, 7 = Very high	α = .94	(Kwon & Jang, 2011)

Note. The measures were modified from the original measurements to fit the current study setting.

4.3.4. Data analysis

An independent-samples t-test was used for the manipulation check. A series of two-way ANOVAs were run to test the effects of dining social context and self-determination on mediating and dependent measures. Simple contrast analyses were performed for significant interaction effects. Lastly, the PROCESS macro (Hayes, 2013; models 4 and 8), which performs multiple regressions and bootstrapping, was used to test the parallel and moderated mediations. To calculate bias-corrected bootstrap confidence intervals, 10,000 bootstrap samples were used for each model (Hayes, 2013).

4.4. Results

4.4.1. Manipulation check

Participants reported that scenarios were very realistic (M = 6.1, SD = .97) and very easy to use (M = 6.2, SD = 1.0), with means that were significantly higher than the mid-point, "4" on the response scale (p's < .001; one-tailed). The manipulation of self-determination was successful in that participants in the self-determined condition agreed more strongly that the solo or group dining decision was made of their own free will (M_{self} = 6.3) than those in the context-determined condition ($M_{context}$ = 4.2; t(268) = 12.9, p < .001).

4.4.2. Hypotheses testing

The adjusted means and standard errors of all dependent measures based on experimental conditions were presented in Table 4-2. The adjusted means for the dependent measures based on experimental conditions were also depicted in Figure 4-2.

Table 4-2. Adjusted means and standard errors of measures based on experimental conditions

Experimental conditions		Off-premise dining intentions	Convenience seeking	Polychronicity seeking	Anticipated enjoyment of on-site dining
Self-determined	Solo	5.5 (.14)	4.7 (.13)	5.3 (.16)	4.5 (.14)
	Group	4.1 (.14)	3.9 (.13)	3.6 (.15)	5.9 (.14)
Context-determined	Solo	5.7 (.14)	4.6 (.13)	5.1 (.15)	4.3 (.14)
	Group	4.9 (.14)	4.6 (.13)	4.2 (.15)	5.2 (.14)

Notes. Standard errors are in parentheses.

4.4.2.1. Off-Premise dining intentions

The main effects of dining social context (F(1, 395) = 63.7, p < .001, η_p^2 = .14) and self-determination (F(1, 395) = 12.4, p < .001, η_p^2 = .03) were both significant, with the impact of dining social context influential in terms of the effect size. Furthermore, the interaction effect (F(1, 395) = 4.2, p = .042, η_p^2 = .01) was significant. Specifically, while solo diners showed significantly stronger off-premise dining intentions than group diners across the self-determination conditions, the effect was weaker in the context-determined (M_{solo} = 5.7 vs. M_{group}

= 4.9, $t(395) = -4.2$, $p < .001$) than the self-determined condition ($M_{solo} = 5.5$ vs. $M_{group} = 4.1$, $t(395) = -7.0$, $p < .001$).

4.4.2.2. Convenience seeking (CS)

In support of ***H1***, the main effect of dining social context was significant ($F(1, 395) = 10.7$, $p = .001$, $\eta_p^2 = .03$), such that solo diners indicated a higher level of convenience seeking than group diners ($M_{solo} = 4.7$ vs. $M_{group} = 4.2$). Furthermore, both the main effect of self-determination ($F(1, 395) = 5.2$, $p = .023$, $\eta_p^2 = .01$) and the interaction effect ($F(1, 395) = 8.8$, $p = .003$, $\eta_p^2 = .02$) were significant. Specifically, while convenience seeking was stronger for solo diners than group diners in the self-determined condition ($M_{solo} = 4.7$ vs. $M_{group} = 3.9$, $t(395) = -4.4$, $p < .001$), the difference in convenience seeking disappeared in the context-determined condition ($M_{solo} = 4.6$ vs. $M_{group} = 4.6$, $p > .8$), thus supporting ***H7(a)***.

4.4.2.3. Polychronicity seeking (PS)

The results showed a significant main effect of dining social context with a large effect size ($F(1, 395) = 70.5$, $p < .001$, $\eta_p^2 = .15$), such that solo diners reported a higher level of polychronicity seeking than group diners ($M_{solo} = 5.2$ vs. $M_{group} = 3.9$). This provided support for ***H3***. Also, the interaction effect was found significant ($F(1, 395) = 6.8$, $p = .010$, $\eta_p^2 = .02$). That is, while the level of polychronicity seeking was consistently higher for solo diners than group diners, the difference in polychronicity seeking was attenuated in the context-determined condition ($M_{solo} = 5.1$ vs. $M_{group} = 4.2$, $t(395) = -4.1$, $p < .001$) compared to the self-determined condition ($M_{solo} = 5.3$ vs. $M_{group} = 3.6$, $t(395) = -7.7$, $p < .001$), which supported ***H7(b)***.

In addition, the results on supplementary measures of polychronicity seeking were consistent. On average, solo diners responded with a greater number of activities that they would engage in during the mealtime than group diners ($M_{solo} = 2.7$ vs. $M_{group} = 1.3$, $F(1, 395) = 64.5$, $p < .001$, $\eta_p^2 = .14$). Similarly, monochronicity seeking significantly differed by the experimental conditions ($\chi^2(3) = 89.5$, $p < .001$). That is, whereas 65.7% of self-determined group diners ($n = 99$) reported they preferred not to engage in any other activities other than focusing on the meal with others, followed by 46.0% of context-determined group diners ($n = 100$), only a handful of solo diners, in both self-determined (13.3%; $n = 98$) and context-determined (12.7%; $n = 102$)

conditions, said they would only focus on the meal. Instead, more than half of all solo diners (n = 200) indicated they would browse the Internet (64.5%) and watch videos or TV (53.0%) while eating. Other popular activities they would engage in during the solo meal included texting (39.0%), reading (32.5%), listening to music or radio (32.5%), and working (29.5%).

4.4.2.4. Anticipated enjoyment of on-premise dining (AE)

A significant main effect of dining social context was revealed with a notable effect size ($F(1, 395) = 61.7$, $p < .001$, $\eta_p^2 = .14$). That is, solo diners anticipated less enjoyment in dining in restaurants than group diners ($M_{solo} = 4.4$ vs. $M_{group} = 5.5$), supporting ***H5***. Additionally, results showed a significant main effect of self-determination ($F(1, 395) = 10.8$, $p = .001$, $\eta_p^2 = .03$) and a marginally significant interaction effect ($F(1, 395) = 3.4$, $p = .067$, $\eta_p^2 = .01$). More specifically, the anticipated level of enjoyment for on-premise dining was lower for solo diners than group diners regardless of self-determination conditions, but the difference was marginally smaller in the context-determined ($M_{solo} = 4.3$ vs. $M_{group} = 5.2$, $t(395) = 4.3$, $p < .001$) than the self-determined condition ($M_{solo} = 4.5$ vs. $M_{group} = 5.9$, $t(395) = 6.8$, $p < .001$). Thus, ***H7(c)*** was supported at the marginal level.

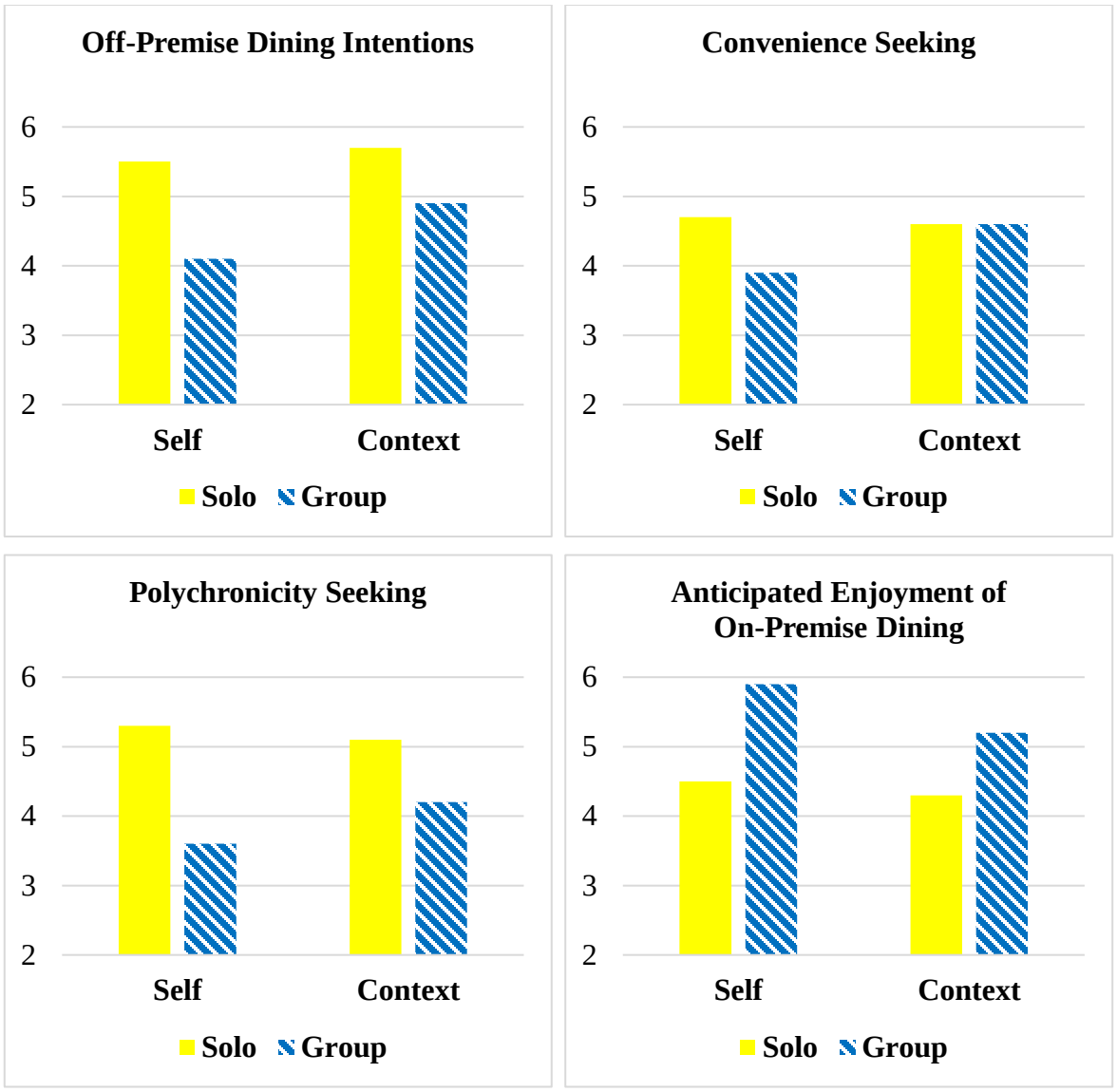

Figure 4-2. Interactions between dining social context and self-determination on the dependent measures

4.4.2.5. Mediation analyses

Figure 4-3 depicted the PROCESS analysis model that was used for testing parallel, moderated mediations. More specifically, in the simple parallel mediation model, dining social context was entered as a focal variable; off-premise dining intentions were entered as an outcome variable; and convenience seeking, polychronicity seeking, and anticipated enjoyment of on-site dining were entered as three parallel mediators (model 4). In the moderated mediation model, self-determination was additionally entered as a first-stage moderator (model 8).

Bootstrapping results showed significant parallel mediations through convenience seeking (CS; Indirect effect = -.12, 95% CI = [-.26, -.05]), polychronicity seeking (PS; Indirect effect = -.33, 95% CI = [-.53, -.17]), and anticipated enjoyment of on-premise dining (AE; Indirect effect = -.20, 95% CI = [-.33, -.09]) on the effect of dining social context on off-premise dining intentions. Specifically, PS was the strongest mediator, followed by AE, and CS. Based on the data coding used for the dining social context (alone = -.5 vs. with others = .5), the negative indirect effects indicated that off-premise dining intentions via the three mediators were reduced for group diners compared to solo diners. Therefore, ***H2***, ***H4***, and ***H6*** that proposed stronger off-premise dining intentions of solo diners as compared to group diners due to CS, PS, and AE, respectively, were supported.

Furthermore, significant moderated mediations were found in that the mediations through CS, PS, and AE were conditioned on self-determination conditions. That is, the indirect effects of dining social context on off-premise dining intentions via PS and AE were smaller in the context-determined (PS 95% CI = [-.43, -.10]; AE 95% CI = [-.27, -.05]) than the self-determined condition (PS 95% CI = [-.70, -.24]; AE 95% CI = [-.39, -.09]). The indirect effect via CS was significant only in the self-determined condition (95% CI = [-.42, -.11]) and disappeared in the context-determined condition (95% CI = [-.13, .09]). Therefore, the results supported ***H8****(a)*, ***H8****(b)*, and ***H8****(c)*.

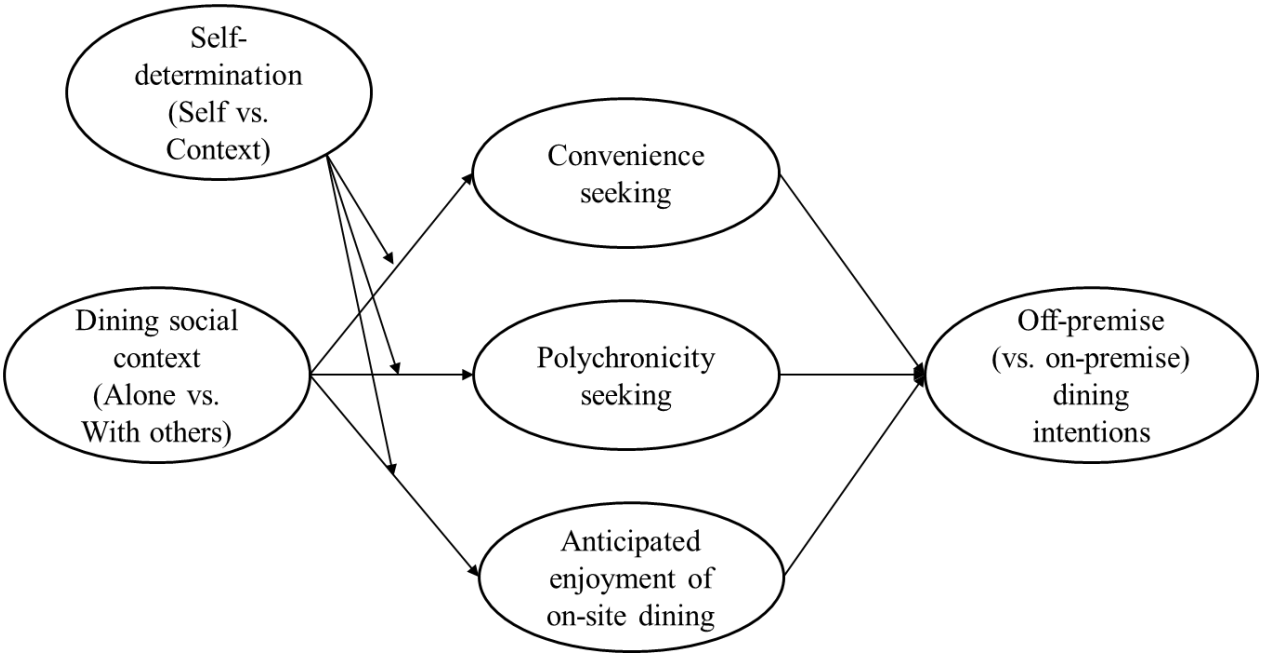

Figure 4-3. The moderated mediation analysis model

4.5. Discussion and Implications

Despite the growing popularity of carryout/delivery, little is known about the motivators and demotivators for off-premise restaurant dining. Therefore, this study addressed conditions in which consumers prefer off-premise over on-premise dining at a casual dining restaurant setting. Findings revealed that solitary consumers (vs. consumers with dining partners) are more (vs. less) likely to select carryout/delivery not only through anticipation of less (vs. more) enjoyment in on-site dining but also through a stronger (vs. less) pursuit of convenience and polychronicity in their meals. Moreover, self-determination added to the finding that the effects were less salient when the solo or group dining decision were made by external situations compared to when it was made by internal desires. Especially, there was no difference between context-determined solo and group diners in their convenience seeking and subsequent off-premise dining intentions. Context-determined solo and group diners differed in their polychronicity seeking, anticipated enjoyment of on-site dining, and subsequent off-premise dining intentions through the two mediators, but the differences were smaller than the differences between self-determined solo and group diners.

4.5.1. Theoretical implications

The findings provide theoretical contributions to the literature about solo diners, restaurant management, and self-determination theory. First, this study confirmed the important role of social context in consumers' decision-making process. Specifically, the absence of dining partners generally leads to utilitarian goals (Her & Almanza, 2018). However, our findings expand the literature by researching specific utilitarian factors such as convenience and polychronicity. These factors may be of particular interest to solo consumers due to the time scarcity that leads to more solo consumption (Jabs & Devine, 2006), shorter average duration of solo activities (Herman, 2015), or loneliness and boredom when alone (Donthu & Gilland, 2002). Also, consistent with Ratner & Hamilton (2015), when the nature of the consumption activity is hedonic and public, such as dining in a restaurant, solitary consumers anticipated less enjoyment in the activity than consumers in a group (possibly due to anticipated negative evaluations from other diners in the restaurant; Her & Seo, 2018). Another notable contribution is that we showed the robustness of the effect of social context across self-motivational (self-determined) and situational (context-determined) conditions, demonstrating the need to study solo consumers separately from group consumers.

Second, the findings expand the hospitality management literature by enhancing the knowledge of motivating factors for on- vs. off-premise restaurant dining. While the restaurant industry is increasingly investing in off-premise restaurant business, hospitality research has not examined when and why consumers would choose carryout or delivery over dine-in. In this regard, our study contributes to the literature by revealing that the dining social context and self-determination are critical determinants for off-premise restaurant dining decisions. Specifically, the findings showed that solo diners had overall stronger off-premise dining intentions than group diners regardless of self-determination conditions, while the difference with group diners was smaller when the group dining was determined by the situational reason than by the voluntary reason. This contributes to previous research about various determinants for on-premise restaurant dining decisions and experiences of solo diners (Her & Seo, 2018; Hwang et al., 2018; Shin, Hwang, & Mattila, 2018). Also, our findings revealed important mediators of the effect of dining social context on off-premise dining intentions: convenience seeking, polychronicity seeking, and anticipated enjoyment of on-site dining. While anticipated enjoyment has been used to predict behavioral intentions in the hospitality and marketing

research, convenience and polychronicity seeking tendencies have been understudied constructs. However, the findings emphasized the important roles of these factors in mediating the effects of solo and group diners' off-premise dining intentions across self-determination conditions. Thus, future hospitality researchers should take these factors into consideration in furthering the understanding of consumers' off-premise restaurant dining behaviors. For example, how could consumers' convenience and polychronicity needs be satisfied to increase off-premise sales? Other than the solo vs. group dining conditions, what kind of personality trait variables would affect consumers' convenience and polychronicity seeking tendencies?

Lastly, this study investigated the moderating role of self-determination in consumers' restaurant decision-making process, thus contributing to the self-determination theory (Ryan & Deci, 2000). While the theory has been widely applied in consumer studies (e.g., Lin et al., 2009; Truong & McColl, 2011), it has been rarely used in a restaurant setting. Consistent with the theory, our findings support the notion that off-premise dining intentions are also predicated on whether the dining decision was made out of self-motivation or was influenced by the context, highlighting the need to consider motivational factors in restaurant studies. We further extend the literature showing that, while context-determined group diners expected less enjoyment in the activity than self-determined group diners (Ryan & Deci, 2000), this was not the case for solo diners. Therefore, when interacting with other factors such as the social context, researchers should acknowledge that the strong effect of other factors may override the effect of self-determination.

4.5.2. Operational implications

The findings also provide several useful insights for practitioners to boost off-premise restaurant business sales. Across the self-determination conditions, the most noticeable finding is that solitary diners showed stronger off-premise dining intentions than diners in a group. Especially, along with the continued growth of solo diners and their projected growth potential ("OpenTable study", 2015), the results pinpoint the potential to increase sales from the understudied market. That is, except for restaurants primarily targeting group diners such as family-dining restaurants, upscale restaurants, and restaurants located in group-friendly travel destinations, restauranteurs that are advancing their off-premise business may hold an advantage in the competitive future food market by embracing the needs of solo diners. Furthermore, the

convenience and polychronicity were found to be key drivers for consumers' off-premise dining decisions and thus, setting up strategies to enhance both values would be important for businesses that are expanding off-premises dining. Particularly, the findings noted that solo diners generally looked for convenience and polychronicity while eating more than group diners and that even group diners pursued these values when group dining was organized around a contextual reason such as business meals. Thus, how could restaurants help meet these needs? For example, time saving is an important aspect of convenience. Therefore, using technology such as online ordering and mobile apps to help facilitate the ordering and transaction processes, allocating a dedicated pickup space, designating staff members exclusive to carryout and delivery orders, and streamlining the delivery system are tactics worthy of consideration. On the other hand, to meet consumers' needs of polychronicity, restauranteurs may wish to carefully select food packaging such as small, secure, leakproof boxes with compactly tied condiments, cutlery, and napkins that are easily portable, for consumers' ease of engaging in other activities while carrying and eating the food. Considering that solo diners showed most preferences in browsing the Internet, watching videos or TV, texting, reading, listening to music or radio, and working while eating, such a compact and tight food packaging design would help satisfy the polychronicity needs. Also, while restaurant operators may be able to equip only one type of container due to a limited storage space, carefully selecting the type of packaging focusing on the aforementioned characteristics would benefit any type of diners including context-determined group diners. Especially, food items that can be readily carried and eaten one-handed or that contain less liquid may be more tempting choices for consumers looking for convenience and polychronicity alike. Thus, these items might be labelled differently in the menu as carryout/delivery-friendly options as an off-premise business marketing strategy.

4.6. Limitations, Recommendations for Future Research, and Conclusion

Although this study offers valuable theoretical and practical implications about off-premise restaurant dining, several limitations are noted. First, the data were collected in the U.S., limiting its generalizability to other country or cultural contexts. Second, the data were collected using scenario-based surveys. While the experimental scenarios were means to ensure the internal validity of the study, future research would need to validate the external validity of the findings in the field setting. Third, the study setting was a meal on a typical day from a casual

dining restaurant and, thus, it is possible that consumers' priorities and values sought may diverge for holiday meals and for different restaurant types. For example, while our findings showed consistent priorities of solo diners across self-determination conditions, self-determined solo diners may also pursue hedonic values if it were for holiday (Leary, Herbst, & McCrary, 2003). Similarly, in a quick-service restaurant, even group diners may prioritize convenience and polychronicity as much as solo diners, leading to the similar levels of drive-thru or delivery intentions between solo and group diners. Thus, future studies may wish to examine how on- vs. off-premise restaurant dining decisions of solo and group diners vary in other settings. Fourth, while this study focused on the impacts of external conditions such as the dining social context and self-determination, there may be inherent personality differences in individuals' preferences over on- and off-premise dining (e.g., extroversion, public self-consciousness, and self-monitoring). Therefore, future research may expand the current findings by exploring additional individual-level factors influencing the off-premise dining decisions.

Considering the growth of single-person households and solo diners, would it be possible to say that the growing popularity of carryout and delivery services has been due to these segments? How would the future of restaurant on- and off-site dining change with future changes in consumer demographics and trends? Would the growing popularity of convenient online or mobile ordering for carryout and delivery eventually disrupt and absorb the on-site restaurant dining completely someday? The journey to investigate various aspects of the increasing off-premise restaurant dining has been embarked on.

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CHAPTER 5. STUDY 3: THE DEVELOPMENT AND VALIDATION OF A SOLO DINER FRIENDLINESS SCALE: SODF

5.1. Introduction

Solo dining is a growing consumer trend, attributed to the rapid increase in one-person households worldwide (Bouhlel et al., 2011; Klineberg, 2013; OECD International Futures Programme, 2011; U.S. Census Bureau, 2019a). The proportion of single person households surpassed 40% in several European countries in 2013 (e.g., Norway, Germany, Switzerland; Euromonitor International, 2014) and more than 36 million people are living by themselves in the U.S. (U.S. Census Bureau, 2019b). A market research company predicted that this household type "will be the fastest growing household profile in 2014-2030 worldwide" (Euromonitor International, 2014). It is often difficult for this demographic to prepare meals for themselves alone at home every day and find dining partners for all dining out occasions. Accordingly, they spend more on food costs away from home, tend to dine out more often, and the dining out occasions are more likely to be by themselves (Halperin, 2015; Takeda, 2016; U.S. Bureau of Labor Statistics, 2000).

Furthermore, the increase in solo travelers, dual-career couples, workers with tight meal breaks, and people enjoying occasional solitude (e.g., millennials preferring to spend their leisure time alone; Mintel, 2013) have contributed to the rise in solo dining (Bianchi, 2016; Leary, Herbst, & McCrary, 2003; Ratner & Hamilton, 2015; Sobal & Nelson, 2003; Takeda, 2016). In terms of table turnover rate, solo diners may be a tempting market as they have shorter meal durations than groups (Herman, 2015; Kimes & Robson, 2004). In other studies, solo diners ranked at the top for average check size per person (Kimes & Robson, 2004; Thompson & Sohn, 2009). However, studies have often reported negative experiences of solo diners in restaurants, which has also negatively impacted their visit and revisit intentions to the restaurants (Danesi, 2012; Dossey, 2016; Heimtun, 2010; Her & Seo, 2018; Jonsson & Ekstroem, 2009; Jordan & Gibson, 2005; Lahad & May, 2017).

Considering the future growth potential associated with solo diners, it may be timely for restaurants to consider how to better serve them and understand ways to enhance their dining experiences and return intentions. Nevertheless, there is limited knowledge about the specific needs of solo diners in regard to the various aspects of restaurants. While a few recent studies

explored the perceived restaurant attributes that affect solo diners' experiences, satisfaction, and revisit intentions (Bae, Slevitch, & Tomas, 2018; Han, 2018; Moon, Bonn, & Cho, 2020), the attributes were either driven from the general restaurant studies (i.e., not from solo diners or from solo dining studies), driven from a small interview sample (i.e., limited generalizability), or focused on only one conceptual aspect (i.e., territoriality) and, importantly, were not compared with group dining (i.e., limited validity).

Therefore, the objective of this study was to develop and validate a multi-dimensional multi-item scale, namely, a Solo Diner Friendliness (SoDF) scale, which measures solo diners' perceptions of critical restaurant factors for their experiences and revisit intentions. In order to achieve the goal, this study first examined the solo diners' preferences for various restaurant attributes (particularly, in casual dining restaurants) that were developed from a review of solo dining literature and in-depth interviews with solo diners. The items developed from the first stage were then refined into a scale using factor analyses of a nationwide online sample. Lastly, the scale was validated testing its relationships with solo dining enjoyment and their revisit intentions, as well as comparing the relationships to group dining. Additionally, specific willingness, perceptions, and preferences of solo diners that were related to the initial items of the scale (e.g., access, seating arrangements, serving staff service, food price, food variety/availability) were also examined during the data collection and analysis procedures to obtain more practical knowledge for restaurant operators.

5.2. Literature Review

5.2.1. Solo dining and key restaurant attributes

This study defines solo diners as those temporarily eating by themselves in restaurants. Thus, solo diners share the characteristics of solo consumers who are situationally involved in consumption activities by themselves (Ratner & Hamilton, 2015). The earliest marketing study that identified solo consumers and highlighted the importance of developing service marketing strategies traces back to 1992 by Goodwin and Lockshin. In this pioneering study, the authors noted the growing prevalence of solo consumption including solo dining (as well as solo shopping or travelling) and argued that service marketers need to be supportive of solo consumers in addressing their lonely feelings and the stereotypes and stigmatization about them.

Since then, Leary et al. (2003) examined why people engage in solo activities including solo dining based on individual orientations for or against social interactions and suggested that people's desire for solitude mainly drives the behaviors. More recently, Ratner and Hamilton (2015) examined a variety of solo consumption behaviors across different settings and revealed that consumers' fear of negative inferences from others negatively influenced their interest in solo activities, particularly for those that are hedonic and in public places such as solo dining. However, findings also revealed that this effect was attenuated if solo consumers could be seen as involving in utilitarian activities such as doing work while being at a coffee shop.

On the other hand, solo dining also often appeared indirectly in the literature as part of solo traveling (Jordan & Gibson, 2005) or as a comparison group in studies about food consumption or studies about general commensality patterns (Cho, Takeda, Oh, Aiba, & Lee, 2015; Herman, 2015; Hetherington, Anderson, Norton, & Newson, 2006; Lee, Cho, & Oh, 2012; Sobal & Nelson, 2003; Yiengprugsawan et al., 2015). It was not until recent decades, and even until recent years, that solo dining itself came to receive academic attention. Heimtun (2010) interviewed midlife single women and showed how their loneliness and fear of marginalization (or social exclusion) led to their dislike of solo dining during vacations. Danesi (2012) determined the positive and negative emotions of eating alone versus with others in a general eating context and revealed again that the fear of negative judgement from others led people to reluctantly dine out alone. Conversely, relaxation, a focus on food experiences, freedom in selecting food choices and time to eat, and no obligation for social communication were shown to be positive aspects of eating alone. Dossey (2016) explored people's inherent fear of solitude and discussed several real-world examples of restaurants that attempted to address the problem, such as offering one-person tables only in the restaurant or teddy bears as company.

Several studies focused more directly on the aspects of restaurants that affect solo dining experiences, enjoyment, and behaviors. For example, Lahad and May (2017) extensively analyzed media publications related to solo dining and identified critical restaurant characteristics such as hosts asking "just one?" questions, seating assignments, table type, and the visibility of solo diners that are subject to others' attention. Han (2018) interviewed frequent solo diners at full-service restaurants and documented a number of restaurant factors ranging from physical environment, service, value, food, to location that were important for solo dining experiences. Similarly, Bae et al. (2018) established the relationships between perceived food,

service, and physical environment qualities of restaurants and solo diners' satisfaction and return intentions. On the other hand, Her and Seo (2018) and Hwang, Shin, and Mattila (2018) focused on the effect of the social environment in restaurants, i.e., other diners, and showed how other solo or group diners in restaurants affect solo diners' dining intentions or anticipated enjoyment depending on the crowding level and distance between tables. Most recently, Moon et al. (2020) applied the privacy regulation theory and human territoriality theory to show the importance of physical and psychological boundaries such as inter-table distance, exclusive use of utensils, uncomfortable gazes from others for solo diners' satisfaction and revisit intentions. The details of the relevant solo dining studies that documented key restaurant attributes are summarized in Table 5-1.

Table 5-1. Literature review of key restaurant attributes influencing solo dining outcomes

Reference	Country	Setting	Type of Analysis	Sample	Independent Variables[a]	Dependent Variables[a]
Bae, Slevitch, & Tomas (2018)	US	Restaurant	Quantitative (online survey)	General solo diners (n = 370)	Food quality (diverse menu items, fresh and quality ingredients, big portion, delicious food, well-presented food), Service quality (cheerful and friendly greeting, net and clean appearance, quick availability of seats, timely food serving, attentive server), Physical environment quality (quality dining equipment, big enough seat space, comfortable temperature, comfortable lighting, appealing wall décor, enticing aroma)	Satisfaction, Return patronage intentions
Han (2018)	South Korea	Full-service restaurant	Qualitative (in-depth interviews)	Frequent solo diners (n = 30)	Location (accessibility, area), Physical environment (seating arrangement, table layout and settings, design and décor, furniture, lighting, aroma, music, cleanliness, color scheme), Service staff (interactions, attentiveness, responsiveness, courtesy, body language, time allowance), Dining environment (table occupancy, type of other diners, soundscape, seating space, familiarity with the restaurant/staff), Value (wait time, food price), Food (healthy food, customization, set/bundles, ingredient quality, presentation), Service design (complementary service), Interaction with other diners	Dining experiences

Table 5-1. Continued

Lahad & May (2017)	Global (primarily, Anglo-American cultures)	Restaurant	Qualitative (online content analysis)	Media publications in newspapers and blogs in English (n = 200)	Host greeting (e.g., "just one?" question), Seating assignments (e.g., by restrooms), Table type (e.g., solo dining tables), Visibility (e.g., attention by others), Space (e.g., protected personal space)	Dining experiences
Johnson & Ekström (2009)	Global (primarily, US, UK, Norway, Sweden)	Restaurant	Conceptual (literature review)	n/a	Table type (e.g., communal table), Seating arrangement (e.g., by restrooms), Service quality and speed, Reading materials (e.g., books or magazines), Gazing from others	Dining experiences
Moon, Bonn, & Cho (2020)	South Korea	Casual dining restaurant	Quantitative (in-person and online survey)	General solo diners (n = 410)	Physical boundaries (inter-table distance, exclusive use of dining utensils and condiments), Psychological boundaries (uncomfortable gazes from others)	Perceived territoriality, Satisfaction, Revisit intentions
Her & Seo (2018)	US	Casual dining restaurant	Quantitative (online survey)	General solo diners (n = 248)	Type of other diners in the restaurants (mostly solo vs. group), Crowding level	Anticipated loneliness, Anticipated negative evaluation from others, Dining intentions
Hwang, Shin, & Mattila (2018)	US	Casual dining restaurant	Quantitative (online survey)	General residents (n = 355)	Type of adjacent diners (solo vs. group), Spatial distance between tables	Attitude toward adjacent diners, Anticipated enjoyment

Table 5-1. Continued

Goode (2018)	UK	Village pub	Qualitative (autoethnography; self-reflection of personal experiences)	A woman solo diner of a post-retirement age (n = 1)	Type of adjacent diners (e.g., proximity with large dining group), Servicescape, Hospitable service, Interactions with service staff and other diners,	Dining experiences
Heimtun (2010)	Norway	Restaurant (on holiday)	Qualitative (focus group interviews and diaries)	Midlife single women who dined out alone on holiday (n = 32)	Location (big anonymous cities vs. travel destination resorts), Restaurant type (cafés vs. resort restaurants), Type of other diners (e.g., families and groups)	Emotions (fears of loneliness, marginalization), Enjoyment, Dining experiences
Dossey (2016)	General	Restaurant	Conceptual (literature review)	n/a	Table type and setting (e.g., one-person table cubes), Loneliness-reducing offerings (e.g., stuffed animal dolls)	Fear of solo dining, Enjoyment or dislikes of solitude
Jordan & Gibson (2005)	US, UK	Holiday travel	Qualitative (in-depth interviews)	Women who travelled alone on holiday (n = 60)	Reading materials (e.g., books or magazines), Surveillance and fear of negative judgment from others	Dining experiences
Danesi (2012)	France, Germany	General eating including dining out	Qualitative (in-depth interviews and participant observation)	Young adults of ages under 29 (n = 45)	Fear of negative judgment from other people, Time schedules (e.g., busy or off-peak-meal periods)	Emotions, Dining intentions

Table 5-1. Continued

Notes. Studies in this table were ordered by their relative relevance to this study.
[a]Among the variables used in the studies, only those that are relevant to this study context were listed.

5.2.2. General restaurant attributes and scales affecting dining experiences

Since this study aimed to develop a measurement scale for important restaurant factors, studies that documented those restaurant aspects that consumers considered when deciding which restaurants to eat at and that affected their satisfaction, experiences, and return intentions were also reviewed. The comprehensive review of key restaurant attributes published between 1997 and 2012 by Ponnam and Balaji (2014) highlighted the following aspects: food dimensions (food quality, food performance, healthiness, natural ingredients, taste); service dimensions (responsiveness, speed of service, attentiveness, reliability, excellence, competence, kindness); environment dimensions (atmosphere, wait-area comfort, seating comfort, cleanliness, facilities); and other dimensions (price, location, reputation, reservations, parking). In other studies, opening hours, prestige, facilities for children, food variety, new experience, prompt complaint processing, and brand were further identified as important determinants of restaurant choices (Auty, 1992; Gregory & Kim, 2004; Heung, 2002; Kivela, 1997; Mattila, 2001). These restaurant attributes are most often categorized under food, service, physical environment, social environment, or other dimensions (Jang & Namkung, 2009; Namkung & Jang, 2008; Ryu & Han, 2010; Ryu, Lee, & Kim, 2012).

Also, researchers developed and validated various measurement scales particularly to assess restaurant dining quality from consumers' perspectives (e.g., Antun, Frash, Costen, & Runyan, 2010; Bufquin, DiPietro, & Partlow, 2017; Kim, Ng, & Kim, 2009; Ryu & Jang, 2008; Stevens, Knutson, & Patton, 1995). For example, the DINESERV scale (Stevens et al., 1995) adopted the SERVQUAL scale in the restaurant setting and suggested 29 items in the assurance, empathy, reliability, responsiveness, and tangibles dimensions. In the upscale restaurant setting, the DINESCAPE scale (Ryu & Jang, 2008) provided 21 items about the perceptions of facility aesthetics, ambience, lighting, table settings, layout, and service staff as important dimensions for restaurant diners' pleasure, arousal, and behavioral intentions. More recently, the DinEX scale (Antun et al., 2010) included 20 items in food, service, atmosphere, social, and health dimensions in restaurants that can measure expectations most important to restaurant diners. Therefore, based on the understanding of both solo dining and general important restaurant attributes in the literature, an initial list of items to be included in a scale were developed, which consisted the first step of the scale development process. The overall scale development and validation procedures used in this study were presented in the following section.

5.3. Methods and Results

5.3.1. Overall research procedures

This study followed the established scale development procedures suggested by Churchill (1979) and DeVellis (2016) and used widely in the hospitality and tourism management studies (e.g., Jeong, Jang, Behnke, Anderson, & Day, 2019; Kim, Ritchie, & McCormick, 2012; Kong, Cheung, & Song, 2011; Liu, Su, Gan, & Chou, 2014; Lu, Cai, & Gursoy, 2019; Ren & Qiu, 2019; So, King, & Sparks, 2014; Wong & Fong, 2011). The overall steps used in the scale development and validation process are summarized in the following paragraphs. The detailed procedures for each step are followed in each of the next sections.

Step 1. Scale development: A comprehensive review of the literature on solo dining, solo consumption, and restaurant attributes was conducted to generate the pool of initial items and to develop questions for semi-structured interviews. Interview questions were based on restaurant food, service, environmental, and other attributes that could possibly impact solo dining experiences and return intentions to the restaurants. Accordingly, exploratory in-depth interview data were collected from diverse individuals who experienced solo dining in casual dining restaurants (n = 24). The interviews were audio-recorded, transcribed, and content analyzed. Based on both the review of literature and in-depth interviews, a list of initial items was generated. The initial items were then judged by a panel of content experts in the areas of foodservice, restaurant, and hospitality management (n = 8) for the content and face validity of the items. At this stage, based on the suggestions of the content experts, several informational questions related to the willingness, perceptions, and preferences of solo diners in restaurant dining for some of the aspects of the initial items were further included to provide more practical information for restaurant operators. The item statements and informational questions were then added, revised, or deleted following the comments of the expert panel. Next, an online survey was developed using the revised scale items and informational questions. A pre-test (n = 16) was conducted with faculty and graduate students in hospitality and tourism management and small changes in the wordings were made based on the feedback.

Step 2. Scale refinement: Nationwide solo dining data (n = 442) were collected from an online survey platform based on the target sample size determined by a ratio to the number of items. Additionally, small group dining data (n = 54) on the final scale were collected later from the online survey platform for their comparison with the solo dining data in testing the

nomological validity. Following the data cleaning processes (n = 410 for solo; n = 51 for group), sample characteristics and informational questions for restaurant operators were analyzed using descriptive statistics. Next, using the solo dining data, the items were first examined using item analysis (i.e., skewness and kurtosis statistics and corrected item-total correlations). The sample was then randomly split into the two sub-samples (n's = 205) for exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), respectively. The EFA identified the underlying structure of the scale and dimensions and CFA confirmed the identified dimensions and items that belong to each dimension in the scale. Validity and reliability tests of the scale were also conducted.

Step 3. Scale validation: As a final step, the nomological validity of the refined scale was tested (n = 410) using multiple regressions for the significant associations between each dimension of the scale and the criterion variables that are supposed to be theoretically relevant, i.e., enjoyment of the dining experiences and revisit intentions to the restaurant. The associations were further compared with group dining models to demonstrate the exclusive or stronger validity of the scale for solo dining. Lastly, Pearson correlations were calculated to explore possibly useful single-item measures among the deleted items that did not fall under the scale dimensions but may be important for solo diners' enjoyment and return intentions.

5.3.2. Step 1: Scale development

5.3.2.1. Generation of the initial item pool

First, an extensive review of the literature was conducted to generate the initial pool of items and questions for in-depth interviews. Because of the scarcity of the studies that specifically examined solo dining in casual dining restaurants, studies that pertained to general solo dining, eating alone at other places, and general solo consumption activities as well as industry and news articles about solo dining (e.g., Halperin, 2015) were also widely reviewed. The studies included both quantitative and qualitative studies of diverse consumer samples across the world. Table 5-1 summarized the key attributes identified from the studies. Also, in order to understand the variety of restaurant factors, studies that assessed general restaurant attributes and identified key dimensions for dining experiences were also reviewed (e.g., DinEX—Antun et al., 2010; DINESCAPE—Ryu & Jang, 2008; DINESERV—Stevens et al.,

1995; Bufquin, DiPietro, & Partlow, 2017; Kim, Ng, & Kim, 2009). Based on the literature review, a list of the restaurant attributes that were found to or that would possibly impact solo dining experiences was generated under five tentative dimensions: Food/Menu, Service, Environments, Facilities, and Other (Table 5-2).

Table 5-2. The list of possibly important restaurant attributes for solo diners drawn from the literature

Dimensions	**Attributes**
Food/Menu	Healthy items, All-you-can-eat buffet, Smaller portion sizes, Course meals or set/bundle menu, Menu categories (e.g., beverages, sides, appetizers, desserts)
Service	Host greetings, Seating assignment (e.g., location and table types), Service speed, Attentiveness, Familiarity with staff, Self-service
Environments	Available table types (e.g., bar, counter, two-top, booth, communal, group), Distance with other diners (e.g., size of the restaurant), Crowding level, Furniture (e.g., comfortable tables/chairs), Decorations, Lighting, Noise level, Background music (e.g., volume and types), Electrical outlets, Wi-Fi
Facilities	On-table devices or tablets (e.g., for menu, orders, payments, games, Internet), Televisions, Reading materials (e.g., books, magazines, newspapers), Music players or headphones
Other	Open hours, Locations, Wait time, Waiting space, Overall price, Promotions or discounts, Happy hours

The next stage involved in-depth interviews with those who have dined alone at casual dining restaurants. This procedure was used to verify the previous findings and also to uncover any understudied aspects in the prior studies. Semi-structured, exploratory interviews were prepared using open-ended questions such as “what kind of restaurant environmental or service attributes enhanced or detracted from your solo dining experiences?” and “what kind of restaurant attributes made you want/not want to revisit the restaurant?”. Especially, it was ensured throughout the interview process that (1) the research setting was casual dining restaurants in which servers provide table-service and the average check size was around $15-25; and (2) the importance of the attributes was specific to solo dining, not general dining. That is, for example, if the interviewee said, “reasonable food price is very important”, the respondent was then asked whether it was correct that it was specifically more important for solo dining as

compared to other dining occasions. The list of restaurant attributes generated from the previous stage (Table 5-2) was provided to interviewees for their reference prior to the interview. Interviews were conducted either in person or online via a video call (Skype). Each interview lasted around 30 minutes. The sample was recruited mostly from a Midwestern city through advertisements via a local public library board, university emails, departmental social media accounts and digital display boards at a building lobby. A few interviewees were recruited from other geographical areas through snowball sampling. Also, whenever possible, purposeful sampling was pursued to accomplish a diversity of sample in terms of age, gender, and race/ethnicity. Sample size was not determined a priori but determined later using data saturation (Francis et al., 2010). A gift card was provided to every interviewee for their participation. All interviews were audio-recorded with the consent from interviewees, and later transcribed and content analyzed with regard to repeating dimensions and items.

As a result, interview data were collected from 24 individuals (ages 21 to 63 with 41.7% in ages 30-39; 50.0% female; 70.8% White; and 54.2% suburban residency) with diverse occupations such as librarian, actor, hotel franchise management, art agent, guest relations, writing center director, student, and professor. The vast majority (91.7%) ate alone more than once a week, including 37.5% who said that they did this every day. When eating alone, 45.8% of them ordered from restaurants at least sometimes (i.e., 40-60% of the time they ate alone) and 16.7% of them said usually (i.e., 60-80% of the time). At casual dining restaurants, they dined alone at least once a month (75.0%), including 37.5% once a week or more. Notably, most solo diners mentioned during the interviews that they were from single households. Most common situational (external) reasons for solo dining included: convenience, time scarcity, or solo business or leisure travels. Conversely, voluntary (internal) motives included for enjoyment of favorite restaurant foods, trying a new restaurants or outdoor activities.

The 50 initial items are listed in Table 5-3. Adding onto the findings from the literature, interviews revealed a huge preference for smaller sized tables for solo diners (i.e., two-top, bar, counter) in the physical environment aspect. Background music was generally preferred, but only with a moderate volume. In regard to service aspects, prompt host service was considered important for solo dining experiences, specifically as they were waiting alone. Also preferred were seating assignments for less observable spaces in the dining room such as toward the corners and seats facing the window for looking outside. Interestingly, interviewees noted that

frequent checking on them by the servers was considered uncomfortable and minimized their enjoyment of their solo time. In terms of the facility, Wi-Fi and electrical outlets were highly desirable, while mixed opinions existed about TVs depending on whether their motive for solo dining was to drink and enjoy (e.g., watching sports channels) or not. In regard to food and menu items, availability of healthy items was generally preferred due to the common motives of solo dining in feeding oneself in daily lives (i.e., less associations with entertaining dining), with particular importance for frequent solo business travelers for their health motives. Also, since solo diners could not share foods with dining partners, they showed an interest in set or bundled menu items with smaller portions (e.g., bento box, tapas). As to other aspects, the proximity of the restaurant (e.g., nearby or along their route) and no waiting line were noted as strong determinants for the choice of restaurant in solo dining compared to group dining in which they would be more willing to move further and wait to eat while having conversations with dining partner(s). Importance of extended hours late at night were highlighted by those with busy work schedules or late night shifts.

Table 5-3. Initial and revised items for pilot testing of the scale

Initial items drawn from the literature review and in-depth interviews	Updated items after expert review
Ease of Access	**Access**
1. The restaurant opens until late night.	1. The restaurant is open until late at night.
2. The restaurant is open in the off-peak-meal period.	2. The restaurant is nearby.
3. The restaurant is closely located from where I am.	3. The restaurant is located on my route.
4. The restaurant is located on my route.	4. I do not have to wait in a long line.
5. The restaurant is located close to my home or workplace.	**Host Service/Seating Arrangement**
Wait Time	5. The host greets me soon after I arrive.
6. There is no long wait time.	6. The host does not draw attention to my being a solo diner.
7. There is no long waiting line.	7. The host does not make it obvious that I am a solo diner.
Host Greetings	8. The host does not make me feel embarrassed because I am eating alone.
8. The host greets a party of one comfortably.	9. The host asks me about my seating preference.
9. The host greets me soon after I arrive.	10. The host seats me in a less conspicuous space.
Seating Assignment	11. The host does not seat me in the middle of large groups.
10. The host does not seat me at the center of the floor.	**Table Variety/Availability**
11. The host seats me in less observable spaces.	12. Small tables for one to two people are available to me.
12. The host does not seat me in the middle of group dining tables.	13. Bar seating is available to me.
13. The host allows me to select a table/seat I want.	14. Counter seating is available to me.
Table Variety/Availability	15. Booth tables are available to me.
14. Small tables for one or two people are available.	16. Tables next to the window are available to me.
15. High-top tables are available.	**Work/Entertainment Offerings**
16. Bar tables are available.	17. Wi-Fi (the Internet) is available.
17. Counter tables are available.	18. Electrical outlets are available.
18. Booth tables are available.	19. There are televisions to watch.
19. Seats facing the window are available.	20. Reading materials (other than the menu) are available.
Work/Entertainment Offerings	
20. The Internet/Wi-Fi is available.	
21. The electrical outlets are available.	
22. Televisions are available.	
23. Reading materials are available.	

Table 5-3. Continued

Ambiance 24. Presence of background music 25. Background music is not loud. 26. The restaurant is not noisy. 27. The restaurant is quiet, rather than noisy. **Service Speed** 28. Overall, the service is fast. 29. I do not have to wait servers for long time. 30. Food order is placed quickly. 31. The food is served quickly. 32. The payment process is fast. **Serving Staff Service** 33. Server does not check on me too frequently. 34. Server lets me enjoy my own solo time. 35. Server is friendly. **Familiarity with Staff** 36. The staff knows me. 37. The staff knows my preferences. **Food Quality** 38. Food is tasty. 39. Food quality is worth the money. **Food Variety/Availability** 40. Healthy menu items are available. 41. Small portion sizes are available. 42. Low-fat menu items are available. 43. Menu items meeting my dietary needs or restrictions are available. 44. Set/bundle options for tasting various menu items are available. **Food Price** 45. Food price is not expensive. 46. The price is reasonable. **Sanitation** 47. Food is prepared sanitarily. 48. The restaurant looks clean. 49. The table looks clean. 50. The surroundings around the table is sanitary.	**Ambiance** 21. There is background music. 22. Background music is not loud. 23. The restaurant is not noisy. **Serving Staff Service** 24. The overall service is fast. 25. I do not have to wait a long time for the server. 26. The server is properly attentive. 27. The server lets me enjoy my solo time. **Food Variety/Availability** 28. Small portion sizes are available. 29. Low-fat menu items are available. 30. Healthy menu items are available. 31. There are menu items that meet my dietary needs or restrictions. 32. Set/bundle menu items that consist of various food with smaller portions are available. **Food Price** 33. The food price is not too expensive. 34. The food price is reasonable for me.

5.3.2.2. Expert review and pilot testing

In order to assess the content and face validity of the initial scale items, a panel of content experts ranging from academic faculty to experienced restaurant chefs (see Table 5-4 for the profile) was invited. Feedback was solicited about the theoretical and practical appropriateness of the items considering the following aspects: i.e., representativeness, relevancy, ambiguity, redundancy, readability, and clarity. The experts independently reviewed the items and provided feedback in person or online. Based on the expert review, items were merged, separated, revised, or deleted referring back to the literature and interviews. More specifically, repetitive words were changed succinctly to achieve conciseness (e.g., from "closely located from where I am" to "nearby"; from "own solo time" to "solo time"); items that lack generalizability were deleted (e.g., "located close to my home or workplace" not applicable for solo travel diners); abstract items were described in more detail to address ambiguity (e.g., from "greets a party of one comfortably" to "does not draw attention to my being a solo diner", "does not make it obvious that I am a solo diner", and "does not make me feel embarrassed because I am eating alone"; specifying the availability of reading materials "other than the menu"); and items that are conceptually not solo dining-specific were deleted (e.g., "Food is tasty" and "The restaurant looks clean"). As a result, the revised scale items were reduced to 34 items (see Table 5-3 for the full list), which was used as a pilot scale for the next steps. In addition, several questions that provide practical information were added based on comments about the perspectives of restaurant operators. For example, it was suggested from experts that "The food price is not too expensive" is consumer-centric and provides vague information for practitioners. Therefore, informational questions such as "How much would you be willing to pay for your solo meal at a casual dining restaurant?" were included at the end of the scale items.

Table 5-4. Profile of the panel of content experts

No.	Expertise	Major experiences
1	Foodservice management	Registered dietitian
2	Foodservice management	Executive chef
3	Hospitality service marketing	Marketing and business development director
4	Foodservice management	Foodservice operations manager, Business owner
5	Nutrition and dietetics	Food and nutrition services director
6	Hospitality data analytics	General manager, Catering director, Business owner
7	Culinary	Executive chef
8	Culinary	Executive chef

The next stage was to develop a survey to test the pilot scale. An online survey was developed using Qualtrics software. In order to assess both internal and external validity and reliability of the scale items, the survey adopted a retrospective design such that participants recall the most recent solo dining experience and answer questions based on the particular experience. Therefore, eligibility criteria included having dined alone at a casual dining restaurant within the past month and being 18 years old or more. The definition of casual dining restaurants was provided to enhance participants' understanding in the eligibility condition. The survey was comprised of the following four sections. ***(1)*** The first section of the survey asked general background information about the dining experience (e.g., the time, primary motive, check size). ***(2)*** The second section listed the pilot scale items developed from the previous stages so participants could reflect on those restaurant attributes using their recent experience. A seven-point scale with the degree of agreement was used to measure the items (1 = Strongly disagree to 4 = Neutral to 7 = Strongly agree). Following the pilot scale items, enjoyment and revisit intentions were measured for nomological validity testing. Enjoyment was measured by asking how enjoyable the solo dining experience was (1= Not enjoyable at all to 7 = Very enjoyable) and revisit intentions were measured with the two items of how interested they were in dining at the restaurant again (1 = Not interested at all to 7 = Very interested) and how likely they would be to return to the restaurant if they were by themselves (1 = Not likely to return at all to 7 = Very likely to return). ***(3)*** The third section asked several informational questions related to the access, host service/seating arrangement, serving staff service, and food variety/availability for offering more practical implications for restaurant operators. Since these questions captured willingness and usual practices (e.g., "How long would you be willing to wait

as a solo diner?"; "If you are given a choice of seating, where would you prefer not to seat?"), for these questions, participants answered based on general solo dining experiences. ***(4)*** Lastly, the survey concluded with dining frequency and demographic questions.

The initial survey was then sent to 23 individuals who are faculty or graduate students in hospitality and tourism management for pilot testing, from which 21 participated in the survey and 16 fully completed all answers. Through the pilot testing, estimated duration was measured so that the survey was not likely to fatigue participants (i.e., over 15 minutes). Also, several response options were added (e.g., dietary needs or restrictions and food preferences) and a few changes in the grammar and ambiguous words were made based on the feedback.

5.3.3. Step 2: Scale refinement

5.3.3.1. Survey data collection and practical information

In order to refine and validate the scale items developed in Step 1, nationwide consumer data were collected at a widely used online survey platform (Amazon Mechanical Turk). The platform was selected based on its diverse subject pool, quality of data, and relatively rapid data collection as previously shown by social sciences methods studies (Chandler & Shapiro, 2016; Mason & Suri, 2012; Paolacci & Chandler, 2014). All participants were provided with small payments as incentives. In terms of the sample size, a sample size that is at least a 5:1 ratio to the number of items for factor analyses was recommended (Hair et al., 2010). Thus, minimum sample sizes of 170 (i.e., 34 items * 5) were needed for both EFA and CFA, resulting in 340 for the total size. To be on a safer side, 446 responses were collected. Data were cleaned using several criteria: incompletion (n = 4), failure to pass attention check (n = 23), and too short or long duration (n = 9). Finally, 410 complete responses were used for the following data analyses, of which the mean duration was 7.6 min (SD = 3.8). Additionally, small group dining data for comparison were also collected later in the same survey platform, using the final scale and same informational questions replacing the words "solo dining" with "group dining" (e.g., "solo" to "group"; "I" to "we"; "my" to "our"; "me" to "us"). Target sample size was determined again by sufficiently surpassing the recommended minimum for performing multiple regressions, which is the ratio between number of participants to the number of variables (i.e., at least 5:1; Hair et al., 2010). Among the 54 responses collected, 51 were used for analyses using the same data

cleaning criteria.

The overall sample characteristics (Table 5-5) and responses for informational questions (Table 5-6) were first explored. More specifically, most participants in the solo dining sample were: 38.1±11.8 years old; male (60.0%); and Caucasian (74.4%). Further, they had a bachelor's degree (57.6%) and were living with one to two people in the house (49.1%). Most participants (82.2%) dined at casual dining restaurants two or more times a month, even including as a solo (50.2%). In addition, most participants reported that the primary reason for their most recent solo dining experience that they recalled for answering the scale item questions was convenience (38.5%) or a desire for solo dining (38.5%). On average, they spent 17.4 ± 6.0 dollars in this recalled solo dining occasion. In the group dining sample, most participants reported that the party size for their most recent group dining that they recalled for answering the scale item questions was two (54.9%), followed by three (13.7%) and four (13.7%).

With respect to the informational question responses, notable differences were found in the aspects of accessibility, food preferences, and food prices (Table 5-6). That is, solo diners reported that they would generally be willing to wait, walk, or drive to eat in the restaurant for only 15 (Mdn's = 10) minutes, which was about half the time for group diners (M's = [17.9, 24.8]). Solo diners reported that they would not prefer to sit in the center of the dining room (34.9%), by the restroom (33.2%), and by the cashier counter (25.6%) if they were given a choice of seating, but the avoidance for those seats were only slightly less for group diners (i.e., 31.9%, 29.8%, and 21.3%, respectively). In regard to the service staff service questions, solo and group diners similarly reported that they would prefer servers to check on their tables about six times and perceived that the service staff were generally very hospitable for them (i.e., *M*'s = 5.9 out of a 7-point scale). However, in terms of the food preferences, solo diners showed a greater preference percentage for convenient meals (49.8%) than group diners (23.4%). Also, more solo diners preferred healthy meals (42.9%) than indulgent meals (20.7%) but the pattern was reversed for group diners: i.e., 31.9% vs. 36.2%. Comfort meals were preferred by most solo (60.5%) and group diners (70.2%) alike. In regard to menu items for special dietary needs or restrictions, most solo and group diners reported no special dietary needs or restrictions (59.5% and 63.8%, respectively) and only a slightly higher percentage of solo diners reported that they needed vegetarian or vegan food, low-sugar, low-carbohydrate, gluten-free, and low-sodium food for their solo meals than group diners did for their group meals. Lastly, while solo diners

reported that they would be willing to pay for their solo meal at a casual dining restaurant for only 15 dollars (Mdn) in a rural location and up to 20 dollars (Mdn's) in a big city or during traveling, group diners reported that they would be willing to pay for 20 dollars (Mdn) in a rural location, 25 dollars (Mdn) during business travels, and 30 dollars (Mdn's) in a big city or during leisure travels for their meal.

Table 5-5. Characteristics of the solo dining survey sample

Variable	**Mean (SD)**	**Range**
Age	38.1 (11.8)	[20, 89]
Variable	**Frequency**	**Percentage (%)**
Gender		
Male	246	60.0
Female	163	39.8
Other	1	0.2
Race/Ethnicity		
White, not Hispanic or Latino	305	74.4
Black or African American	41	10.0
Hispanic or Latino	34	8.3
Asian	18	4.4
American Indian or Alaska Native	6	1.5
Native Hawaiian or Pacific Islander	1	0.2
Two or more (Whites and other)	5	1.2
Education		
Some high school but no diploma, or less	1	.2
High school diploma	23	5.6
Some college or associate degree	78	19.0
Bachelor's degree	236	57.6
Graduate degree	72	17.6
Household size		
1 (single household)	69	16.8
2	95	23.2
3	106	25.9
4	86	21.0
5	37	9.0
6	13	3.2
7 or more	4	1.0
Frequency of dining at casual dining restaurants		
Less than once a month	28	6.8
Once a month	45	11.0
2-3 times a month	162	39.5
1-2 times a week	157	38.3
3 or more times a week	18	4.4

Table 5-5. Continued

Frequency of solo dining at casual dining restaurants		
Less than once a month	89	21.7
Once a month	115	28.0
2-3 times a month	121	29.5
1-2 times a week	62	15.1
3 or more times a week	23	5.6
Total	410	100.0

Table 5-6. Willingness, preferences, and perceptions of solo and group diners in casual dining restaurants

	Solo Dining			Group Dining		
Questions/Answers	**Mean**	**Median**	**SD**	**Mean**	**Median**	**SD**
Access						
Q. Generally, up to how long would you be willing to … to (eat in) the restaurant as [a solo diner / group diners][a]?						
…wait… (in min)	14.7	10	14.1	24.8	23	13.3
…walk… (in min)	14.5	10	13.7	17.9	15	16.4
…drive… (in min)	15.5	10	12.4	23.6	20	14.0
Service Staff Service						
Q. Generally, how often would you prefer the server to check on [you / your group], other than (1) taking the order, (2) bringing the order, and (3) closing the check? Exclude the minimum 3 times.						
(In number of times)	3.1	2	5.0	3.1	2.5	1.6
Q. Generally, how hospitable do you feel the service staff are for you as [a solo diner / group diners]?						
(1 = Not hospitable at all, 7 = Very hospitable)	5.9	6	0.9	5.9	6	0.9
Food Price						
Q. How much would you be willing to pay for your [solo meal / meal within a group] at a casual dining restaurant...						
…in a big city? (in dollars)	25.8	20	22.4	48.9	30	59.5
…in a rural location? (in dollars)	18.8	15	23.9	30.2	20	31.9
…while traveling for business? (in dollars)	25.2	20	26.0	37.3	25	37.7
…while traveling for leisure? (in dollars)	24.2	20	21.0	39.5	30	40.4

Table 5-6. Continued

Questions/Answers[b]	Solo Dining Frequency	Solo Dining Percentage (%)	Group Dining Frequency	Group Dining Percentage (%)
Host Service/Seating Arrangement				
Q. If you are given a choice of seating as [a solo diner / group diners], where would you prefer not to sit? (select all that apply)				
Center of the dining room	143	34.9	15	31.9
By the restroom	136	33.2	14	29.8
By the cashier counter	105	25.6	10	21.3
Sides of the dining room	105	25.6	13	27.7
By large groups	99	24.1	10	21.3
No seating preferences	90	22.0	12	25.5
By solo diners	59	14.4	5	10.6
By couples	53	12.9	2	4.3
Food Variety/Availability				
Q. What adjectives best describe the food that you typically want to eat for [a solo meal / group meals]? (select all that apply)				
Comfort	248	60.5	33	70.2
Convenient	204	49.8	11	23.4
Healthy	176	42.9	15	31.9
Home-style	158	38.5	19	40.4
Filling	158	38.5	17	36.2
Indulgent	85	20.7	17	36.2
Luxury	75	18.3	11	23.4
Small portions	71	17.3	5	10.6

Table 5-6. Continued

Q. If you have special dietary needs or restrictions, what kind of menu items would you need for your [solo meal / group meals]? (select all that apply)				
No special dietary needs or restrictions	244	59.5	30	63.8
Vegetarian or vegan food	91	22.2	9	19.1
Low-calorie food	68	16.6	9	19.1
Low-fat food	52	12.7	8	17.0
Low-sugar food	51	12.4	5	10.6
Low-carbohydrate food	41	10.0	3	6.4
Gluten-free food	38	9.3	3	6.4
Food free from my allergen(s)	26	6.3	4	8.5
Low-sodium food	15	3.7	1	2.1
Total	410	100.0	47[c]	100.0

Notes: [a]Only a matching word in the brackets was presented for the solo and group dining samples.

[b]The answers are ordered in a descending manner based on the frequency of the solo dining sample.

[c]In the group dining sample, 4 responses were missing for the questions in this section.

5.3.3.2. Scale purification

Prior to splitting the solo dining sample, all 34 items were first examined using item analysis including skewness and kurtosis statistics and corrected item-total correlations. It turned out that one item about the availability of reading materials had an opposite sign of a skewness statistic and also showed a significantly small corrected item-total correlation (.039) compared to all of the other items. Thus, deleting this item, 33 items proceeded to the next stage.

The sample was then randomly split into two sub-samples of equal sizes, for EFA (n = 205) and CFA (n = 205), using the random number generation function of the SPSS software ver. 26. The EFA was performed on the first sub-sample using Principal Component Analysis with Varimax rotation method, the most widely used methods in the scale development studies. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were used to assess the adequacy of conducting EFA for the scale items and of the sample size. According to Hair et al. (2010), based on the sample size of 200, factor loadings need to be at least .4 to be statistically significant. Thus, a cut-off point of .4 was used for identifying items with significant loadings to retain and with cross-loadings (i.e., factor loadings of .4 for two or more factors) for deletion. Along with the factor loadings, items with low communalities (< .5) and items that are conceptually inconsistent with the remaining items under a factor were also considered for potential candidates for deletion. The number of factors were decided based on the eigenvalues with a cut-off point of 1.

After iterative processes of EFA of eliminating eight items with cross-loadings, two items with no significant loading and low communalities, two items with theoretical concerns (i.e., "nearby location" and "reasonable food price" loading with four staff service-related items), 21 items significantly loaded on seven factors, explaining 67.187% of the total variance (Table 5-7). The communalities of the items also ranged between .539 and .822. The KMO statistic was 0.800, which is considered meritorious (Hair et al., 2010), and Bartlett's Test of Sphericity was also significant (χ^2 (210) = 1463.8, $p < .001$). Thus, results indicated significant correlations among the items and the appropriateness of the sample size for factor analysis. Based on the common characteristics of the items under each factor, each of the seven factors were labeled as *Inconspicuousness* (five items), *Proper service* (four items), *Healthy menu items* (two items), *Utilitarian seating* (three items), *Utilitarian needs* (three items), *Hedonic tables* (two items), and

Adequate Background music (two items). Accordingly, the seven factors including 21 items proceeded to the next stage.

Table 5-7. Exploratory factor analysis results of the purified scale

Dimensions and Items	Factor Loading	Eigenvalue	Variance Explained (%)
Inconspicuousness		3.250	15.477
The host did not make it obvious that I was a solo diner.	.818		
The host did not make me feel embarrassed because I was eating alone.	.795		
I did not have to wait in a long line.	.732		
The host did not draw attention to my being a solo diner.	.717		
The host did not seat me in the middle of large groups.	.534		
Proper Service		2.766	13.172
The server let me enjoy my solo time.	.786		
The host greeted me soon after I arrived.	.723		
The overall service was fast.	.718		
The server was properly attentive.	.712		
Healthy Menu Items		1.850	8.808
Healthy menu items were available.	.887		
Low-fat menu items were available.	.870		
Utilitarian Seating		1.762	8.391
Bar seating was available to me.	.759		
Counter seating was available to me.	.713		
The host asked me about my seating preference.	.703		
Utilitarian Needs		1.511	7.193
Wi-Fi (the Internet) was available.	.740		
The restaurant was open until late at night.	.711		
The restaurant was located on my route.	.548		
Hedonic Tables		1.496	7.124
Tables next to the window were available to me.	.704		
Booth tables were available to me.	.688		
Adequate Background Music		1.475	7.022
There was background music.	.825		
Background music was not loud.	.819		
Total Variance Explained (%)			67.187

Notes. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy = 0.800; Bartlett's Test of Sphericity was significant (χ^2 (210) = 1463.8, $p < .001$).

5.3.3.3. Scale finalization

To confirm the purified scale from the EFA and to assess the reliabilities and validities of the constructs, the CFA was performed in the SPSS AMOS ver. 26 software using the second sub-sample. More specifically, convergent validity (i.e., if a factor is not explained by the items under the factor) was tested with Average Variance Extracted (AVE), standardized factor loadings, and Composite Reliability (CR). Discriminant validity (i.e., if items under a factor correlate well with items under the same factor) was tested with Maximum Shared Variance (MSV), AVE, and inter-construct correlations in the correlation matrix (Hair et al., 2010). In addition, Cronbach's α coefficients were calculated to assess the reliability (i.e., whether items are internally consistent and homogeneous) of the factors. In social science studies, the α coefficients greater than .7 indicate reliable constructs. The results showed that the first three factors were reliable measures (α's > .74). However, the last four factors including *Utilitarian seating* (α = .62), *Utilitarian needs* (α = .49), *Hedonic tables* (α = .54), and *Adequate Background music* (α = .62) showed poor internal consistency. Also, the CFA results revealed that the goodness-of-fit statistics of the measurement model and validity and reliability statistics were not within the acceptable ranges with the second and third items under *Inconspicuousness* even after eliminating the four factors. Therefore, the four factors and two items were removed and the EFA was verified again with the modified scale.

The final CFA results for the modified scale, i.e., nine items under three factors, are shown in Table 5-8. The measurement model had a good fit with the data, supported by the goodness-of-fit statistics within the acceptable ranges of the established criteria (χ^2 = 60.658, df = 25, $p < .001$, χ^2/df = 2.426, CFI = .939, TLI = .931, GFI = .936, AGFI = .885, RMSEA = .084; Hair et al., 2010). In regard to convergent validity, the CR of all factors exceeded the .7 threshold and standardized factor loadings of all items exceeded the .5 threshold. The AVE of all factors also exceeded the .5 threshold with an exception of *Proper service* at the value of .478. However, according to Malhotra and Dash (2011), "AVE is a more conservative measure than CR" and thus, "on the basis of CR alone, the researcher may conclude that the convergent validity of the construct is adequate" (p. 702). Thus, it was concluded that the convergent validity of the scale was adequate. Discriminant validity of the scale was also supported; the AVE of all factors were greater than their MSV, and the square roots of AVE were greater than all inter-construct

correlations (Table 5-9). Therefore, the construct validities and reliabilities of the 3-dimensional 9-item scale was confirmed.

Table 5-8. Confirmatory factor analysis results of the finalized scale

Dimensions and Items (Cronbach's α)	Standardized factor loadings[a]	CR	AVE	MSV
Inconspicuousness **(.746)**		0.768	0.536	0.370
The host did not make it obvious that I was a solo diner.	.898			
The host did not draw attention to my being a solo diner.	.740			
The host did not seat me in the middle of large groups.	.505			
Proper Service **(.773)**		0.782	0.478	0.370
The server let me enjoy my solo time.	.767			
The host greeted me soon after I arrived.	.596			
The overall service was fast.	.573			
The server was properly attentive.	.799			
Healthy Menu Items **(.745)**		0.758	0.612	0.171
Healthy menu items were available.	.836			
Low-fat menu items were available.	.724			

Notes. χ^2/df = 2.426 (χ^2 = 60.658, df = 25, p < .001), CFI = .939, TLI = .931, GFI = .936, AGFI = .885, RMSEA = .084; CR = Composite Reliability; AVE = Average Variance Extracted; MSV = Maximum Shared Variance.

[a]All factor loadings were significant (p's < .001).

Table 5-9. Inter-construct correlations among the scale dimensions

	Inconspicuousness	Proper Service	Healthy Menu Items
Inconspicuousness	0.732*		
Proper Service	0.608	0.691*	
Healthy Menu Items	0.121	0.413	0.782*

Notes. *Square roots of Average Variance Extracted (AVE) for each dimension.

5.3.4. Step 3: Scale validation

5.3.4.1. Nomological validity testing

The last step of the scale development and validation was to test the nomological validity (i.e., if the factors are associated with theoretically relevant variables). Since this scale was designed to capture the restaurant attributes that are friendly for solo diners, the hypothesis was that the dimensions of the scale would be positively associated with the level of enjoyment of solo dining experiences and solo diners' revisit intentions to the restaurants. Accordingly, using the solo dining sample (n = 410), multiple regressions were conducted between each of the three dimensions of the finalized scale and two dependent variables including enjoyment and revisit intentions that were used as criterion variables. Also, for repeat validation, the same analyses were conducted using the group dining sample (n = 51) to compare the effects between solo and group diners. The hypothesis for group diners was that the dimensions of the scale would be not be associated with their enjoyment of dining experiences and revisit intentions to the restaurants or the relationships would be weaker than those for solo diners. Since enjoyment level may positively affect revisit intentions, it was included as a covariate in one of each revisit intentions model.

Before performing the regression analyses, the reliability of measurements was first verified. In the solo dining data, all variables showed adequate α levels: *Inconspicuousness* (α = .73), *Proper Service* (α = .80), *Healthy Menu Items* (α = .79), and revisit intentions (α = .72). Iin the group dining data, all variables, i.e., *Proper Service* (α = .84), *Healthy Menu Items* (α = .90), and revisit intentions (α = .87), had good reliability except *Inconspicuousness* (α = .60). The poor reliability of the scale dimension was in part expected because the items were developed from solo diners' perspectives. In support of this, the examination of the item statistics of *Inconspicuousness* revealed that the corrected item-total correlation of the last item (i.e., "the host not assigning their seats in the middle of large groups") was significantly low (.07), and eliminating this item from the construct *Inconspicuousness* greatly improved the reliability (α = .87). Thus, for the sake of the comparison with the solo dining data, the last item of *Inconspicuousness* was still included in the group dining analyses as a separate single-item measure.

The multiple regression results are shown in Table 5-10. As expected, the enjoyment of dining experiences had a positive impact on revisit intentions to the restaurants for both solo and

group diners. Importantly, however, the scale dimensions were overall positively related with the enjoyment level of the dining experiences and revisit intentions for solo diners only and not for group diners, supporting the hypotheses. More specifically, solo diners' enjoyment and revisit intentions to the restaurants were estimated to significantly increase based on *Proper Service* (*b*'s ≥ .26, *p*'s < .001) and *Healthy Menu Items* (*b*'s ≥ .07, *p*'s < .05) of the restaurants. While *Inconspicuousness* of the restaurant was not significantly associated with solo diners' level of enjoyment ($p > .05$), it had a significant positive impact on solo diners' intentions to return to the restaurant for future solo dining (*b*'s ≥ .10, *p*'s < .01). Among the three dimensions of the scale, *Proper Service* was found most important for solo diners' enjoyment and revisit intentions given the regression coefficients and significance levels.

In comparison, for group diners, none of the scale dimensions (except *Proper Service*) were associated with enjoyment and revisit intentions to the restaurants. Although *Proper Service* of the restaurant positively affected the enjoyment of group dining experiences and it also seemed to positively affect their return intentions to the restaurants (*p*'s < .05), the effect on revisit intentions was not significant anymore ($p > .05$) once the enjoyment level was held constant. Furthermore, the comparison of the effect of *Proper Service* on the enjoyment levels also showed that it was stronger for solo diners ($b = .53$, $p < .001$) than group diners ($b = .36$, $p < .01$). Similarly, while the scale dimensions jointly explained 27% of the variance of solo dining enjoyment and 34% of the variance of their return intentions to the restaurants at the population level (adj. R^2), the same dimensions explained only 16% and 14% of the variances of enjoyment and revisit intentions in group dining. Therefore, based on the significant relationships between the dimensions of the scale and the criteria variables in solo dining as well as their non- to weaker relationships in group dining, it was concluded that the nomological validity of the scale was demonstrated.

Table 5-10. Multiple regression results testing the nomological validity of the scale

	Solo Dining			Group Dining		
	Enjoy.	**R.I.**	**R.I.**	**Enjoy.**	**R.I.**	**R.I.**
Scale						
Incons.[a]	.03 (.04)	.12 (.04)**	.10 (.04)**	.02 (.06)	.09 (.09)	.08 (.08)
Service	.53 (.06)***	.48 (.05)***	.26 (.05)***	.36 (.11)**	.40 (.16)*	.15 (.16)
Healthy	.09 (.04)*	.11 (.03)**	.07 (.03)*	-.08 (.07)	.01 (.10)	.07 (.09)
Incons.1[a]	.	.	.	-.03 (.08)	.06 (.11)	.09 (.10)
Enjoyment	.	.	.43 (.04)***	.	.	.69 (.19)***
Intercept	2.2 (.31)***	2.0 (.28)***	1.0 (.26)***	4.4 (.77)***	2.8 (1.1)*	-.26 (1.3)
R^2	.27	.34	.49	.23	.20	.39
Adj. R^2	.27	.34	.48	.16	.14	.33
F	50.7***	69.7***	96.2***	3.4*	3.0*	5.8***

Notes. Enjoy. = Enjoyment; R.I. = Revisit Intentions; *Incons*. = *Inconspicuousness*; *Service* = *Proper Service*; *Healthy = Healthy Menu Items*; Unstandardized regression coefficients and standardized errors are presented.
[a]In the group dining models, the three items of *Inconspicuousness* were included separately as *Incons.* with the first two items and Incons.1 with the last item due to a low corrected item-total correlation of the last item.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

5.3.4.2. Additional exploration of the items not included in the scale

Lastly, in order to explore any other restaurant attribute items that did not load onto specific factors but may still be important to be considered for understanding solo diners' enjoyment and revisit intentions, Pearson correlations were calculated between the remaining items and the criterion variables, enjoyment and revisit intentions, for both solo and group dining data. Items were first examined to see if they had a correlation of a generally considered moderate value (i.e., $r \geq .3$ in social sciences studies) with at least either of the enjoyment or revisit intentions. After excluding several items that were moderately associated with the criterion variable(s) for both solo and group diners (e.g., "the food price was not too expensive"), the results are presented in Table 5-11. More specifically, the availability of small tables, nearby location, not noisy ambiance, and the availability of menu items meeting personal dietary needs or restrictions were found important for solo diners' enjoyment and revisit intentions (*p*'s

< .001), while none of them were significant in group dining. The servers' prompt attention was also found relatively more important for revisit intentions of solo diners (r = .46, p < .001) than those of group diners (r = .32, p < .05). Therefore, considering that single-item measures can be valid when the object and the attribute are considered concrete and uniform (Bergkvist & Rossiter, 2007) and maybe useful to address redundancy, these items may be of consideration as single-item measures in the future solo dining studies.

Table 5-11. Pearson correlations between generated items and enjoyment and revisit intentions

	Solo Dining		Group Dining	
Items	**Enjoyment**	**Revisit Intentions**	**Enjoyment**	**Revisit Intentions**
Small tables for one to two people were available to me (us).	.41***	.43***	.20	.27
The restaurant was nearby.	.30***	.41***	.20	.16
The restaurant was not noisy.	.32***	.27***	-.02	.06
There were menu items that meet my (our) dietary needs or restrictions.	.24***	.35***	-.15	.06
I (We) did not have to wait a long time for the server.	.34***	.46***	.35*	.32*

Notes. The words used for group dining are in parentheses.
*p < .05. ***p < .001.

5.4. Discussion and Conclusion

Driven by the growth potential of the current solo dining trend, this study developed and validated a Solo Diner Friendliness (SoDF) scale that included nine items falling under three dimensions: *Inconspicuousness*, *Proper Service*, and *Healthy Menu Items*. The items were generated from an extensive literature review and in-depth interviews and tested for face validity from a panel of content experts and through a pilot test. The items were refined using factor analyses and the validities and reliabilities of the refined scale were also tested using important item and test statistics. The final scale was also tested for its significant relationships with solo dining enjoyment and revisit intentions, and importantly, the relationships were compared with group diners for their greater strengths in solo dining. Thus, this study demonstrated that the SoDF scale was a valid and reliable measure for future research and an insightful tool for practices.

Theoretically, consistent with the literature, the *Inconspicuousness* dimension of the SoDF scale showed that it was important for solo diners not to be treated and seated conspicuously by the host. Most often, studies emphasized that the fear of negative judgement from others, uncomfortable attention and gazes from others, their visibility to other people, and whether they are seated close to group diners is one of the strongest negative reasons against dining out alone. Accordingly, the *Inconspicuousness* dimension captured solo diners' needs for host service such that the host did not make the solo diners' state of being alone obvious, not drawing attention to them dining alone, and not seating them in the middle of large groups, adding onto the literature.

On the other hand, the *Proper Service* dimension documented solo diners' needs for fast but flexible service from the service staff such that the host immediately greeting them upon arrival and the server letting them enjoy their own time alone by properly being attentive, while overall providing fast service. That is, the interviewers of this study mostly noted that they seek convenience and utilitarian consumption when they are dining by themselves, meaning that they are usually there in the restaurants for functional reasons of eating while engaging in other activities (vs. relatively more food and ambiance indulging reasons of group diners). The first and second studies of this dissertation also revealed solo diners' utilitarian orientation and convenience-seeking tendencies. In this line, it was apparent that overall fast and attentive service of the restaurant was deemed important for their experiences and return intentions. At the same time, most interviewees also emphasized that too frequent checking of the servers was bothersome for their dining time alone (e.g., often, work or entertaining activities-involved such as reading, watching phones or televisions, etc.). This was captured by the "properly attentive" server who let solo diners enjoy their own time and this finding newly expanded previous knowledge. Also, for restaurant operators, the finding from the informational questions revealed that solo diners prefer the server to check on their tables about six times (same as group diners) and this number of table checking may thus be used as a basic service standard when training servers.

The last dimension, *Healthy Menu Items*, measured whether healthy and low-fat menu items were available in the restaurant. Again, as found in the prior study, the relative utilitarian orientation of solo diners was connected to their greater preference towards healthy menu items compared to group diners. In addition, responses also revealed that higher percentages of solo

diners preferred to eat healthy meals compared to group diners who wanted more indulgent meals. Thus, this result also added onto the earlier findings.

In addition to the development of the SoDF scale, this study also provided useful implications not only contributing to knowledge about solo dining, but also insights about marketing and operations management in restaurants. That is, among the items that were not included in the scale as factors, we provided several items that may be considered as important single-item measures for solo dining. These items included whether small tables (for one to two people) were available, the location was nearby, the restaurant environment was not noisy, menu items meeting personal dietary needs or restrictions were available, and the service was quick. These items were again consistent with the literature in that they are mostly related to the convenience and utilitarian needs (i.e., close location, fast service, quiet environment, and menu items based on personal food needs). Our findings from the informational questions also added to that solo diners generally would be less willing to wait, walk, or drive for restaurant dining than group diners.

In comparison, while the preference for small tables has not been studied in prior research, some trendy and innovative restaurants in large cities have already focused on this aspect and have begun to provide more small tables for one person (e.g., one-person cubes) to attract more solo diners. Our finding indeed confirmed that this was a wise strategy to enhance solo diners' enjoyment and return intentions. In addition, while the food price items of our initial scale did not load onto certain dimensions and thus were taken out from the final scale, the responses in the price questions did show a notable difference between solo and group diners' willingness to pay in casual dining restaurants across different settings (i.e., cities vs. rural towns; during business travels vs. leisure travels). Therefore, these factors such as smaller table size, not high noise levels, menu offerings meeting various dietary needs or restrictions, servers quickly checking on tables, and reasonable food prices (i.e., up to 20 to 25 dollars depending on the settings and locations) would need to be important considerations for restaurants that already or intends to have a high number of solo diners in their establishments.

Lastly, this study is not free from limitations and these are rooms for future research. While the information about the practical informational questions provided useful knowledge for restaurant operators, terminologies used in the question of food preferences may need to be clarified and future studies could expand upon the adjective descriptions. For example, how do

consumers perceive or define convenient and inconvenient food? How do consumers perceive comfort food in comparison with home-style food and indulgent food? Also, in terms of the generalizability of the SoDF scale, a caution is needed that the scale was developed in the U.S. casual dining restaurant context. Therefore, future research testing and modifying the scale across other cultural contexts may add to the current literature.

In summary, this study was the first study that provided a valid and reliable SoDF scale that can be a useful tool for future researchers studying solo diners' experiences in restaurant dining and how to enhance them. The SoDF scale also offered restaurant operators with interests in embracing solo dining preferences a self-diagnostic tool to know whether their operations are solo diner friendly in food and service aspects and what to improve. The limitation of this study includes that the interview and survey sample to generate and validate the scale items was limited to those in the U.S. Thus, based on the wide range of studies reviewed that included study sample across different countries and by taking advantage of the SoDF scale, future research is encouraged to validate or modify the scale across different cultural contexts or countries.

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CHAPTER 6. CONCLUSION

The purpose of this dissertation was to enhance the understanding of solo diners' motives, preferences, and behavioral intentions in on- and off-site restaurant dining (particularly in the casual dining restaurant setting). Based on the completion of the three proposed studies, the dissertation identified solo (vs. group) diners' motives and preferences for ordering intentions of healthy or indulgent menu items in on-site dining (study 1), solo (vs. group) diners' motives and preferences for off-site dining intentions (study 2), and solo (vs. group) diners' service and food preferences for enjoyable on-site restaurant dining through the development of a Solo Diner Friendliness scale (SoDF). The value of the dissertation lies in the extension of solo dining knowledge to its associations with other conceptual areas ranging from healthy food consumption to off-site dining to development of the SoDF scale. Also, across the three studies, solo dining findings were cross-validated by comparing them to group dining findings, thereby addressing possible validity problems such as found in previous studies which focused only on solo diners.

More specifically, study one offered an understanding of the differences in solo and group diners' menu item decision-making processes in terms of healthy or indulgent items through the application of self-control dilemmas and temporal construal theory as its conceptual bases, while using consumption orientation and amount of nutrition information as a mediator and a moderator, respectively. It was proposed that, when it comes to the self-control condition between deciding healthy food that comes with future health benefits and indulgent food that comes with immediate taste benefits, solo diners would weigh more on the positive future outcomes of healthy food compared to group diners who would want the immediate pleasure of delicious food to enjoy the dining experience with their dining company. The findings indeed revealed that solo diners generally preferred healthy menu items more than group diners, confirming the hypothesis, but the effect occurred only when diners' awareness of healthy or indulgent menu items was enhanced due to the provision of nutrition information including calories, fat, and sodium. Thus, the finding further highlighted the role of the menu nutrition information in varying consumers' menu item decisions in a healthier (solo diners) or an indulging (group diners) way. In addition, the hypothesis that solo diners would show less preferences towards indulgent menu items compared to group diners due to solo diners' relative

utilitarian (i.e., less hedonic) consumption orientation was also supported by the findings, extending the literature emphasizing the associations of solo dining with utilitarian aspects.

In practical terms, the findings suggested that the restaurant menus primarily featuring healthy menu items might attract more solo diners compared to group diners, and vice versa for the restaurants primarily featuring indulgent menu items, and this should be taken into consideration for other aspects of restaurant operation and design. Most likely, if restaurants are mixed with both solo and group diners, these restaurants can better predict that healthy items on the menu would be generally more popular among solo diners and that the indulgent items on the menu would be generally more popular among group diners. Thus, when considering changes to menus or considering menu engineering strategies, restaurants would be able to anticipate which consumer base might be more strongly affected by adding or cutting healthy or indulgent menu items, often cited as primary considerations among national restaurant chains when modifying their menus (Glanz et al., 2007). However, this does not mean that solo diners would universally seek only healthy restaurants and items, while the converse would also not necessarily be true for group diners (i.e., they would universally seek indulgent items). Recent studies (Her & Seo, 2018; Moon, Bonn, & Cho, 2020) as well as the first and third studies of this dissertation revealed that some solo diners visit fine dining restaurants and eat alone for gastronomy reasons. This suggests that there can be subgroups within solo diners with different motives among solo diners, just as there are for group diners, and some actively engaged solo diners may also look for hedonic dining. Therefore, while study one focused on the general difference across solo and group dining tendencies, the segmentation of solo diners and its impact on different decision-making process and subsequent behavioral outcomes would warrant future research.

Secondly, study two provided an understanding of the motivational differences between solo and group diners choices of on- versus off-site restaurant dining and how those effects differed depending on self-determination conditions suggested by the self-determination theory. More specifically, it was hypothesized that solo diners would show stronger intentions of ordering carryout or delivery meals over dining in the restaurant than group diners. The three proposed mediators for this effect was solo diners' (vs. group diners) greater convenience-seeking tendency, greater polychronicity-seeking tendency, and lower anticipated enjoyment in on-site dining for solo diners. Furthermore, a moderating role of self-determination was proposed such that the context-determined group diners (e.g., business meeting dining compared to

voluntary group dining occasions) would more closely follow a pattern of solo diners, while solo diners' strong off-site dining intentions would remain relatively stable across self- or context-determined conditions. Therefore, the gap between solo and group diners' off-site dining intentions was expected to be moderated by their self- vs. context-determination of solo or group dining. It was found that solo diners actually showed more preferences for off-site dining than group diners through the three mediators, and that the effect was attenuated in the context-determined condition. Thus, the findings expanded the literature by identifying newly applied motives of solo diners, which were convenience- and polychronicity-seeking, and the critical mediation roles of these constructs between dining social context (solo vs. group) and intentions of ordering carryout or delivery meals. Also, the findings contributed to the theory by how self-determination can interact with the mechanism of solo and group diners' off-site dining intentions.

Practically, the findings helped restaurants to identify what are the primary motives of diners ordering carryout or delivery meals (i.e., convenience, polychronicity, and less anticipated enjoyment of on-site dining) and which consumer segment may be a tempting market to drive more sales from off-premise dining services (i.e., solo diners and, to a lesser degree, context-determined group diners). This understanding of the important drivers of off-site ordering and expectations in promising consumer bases would help with restaurants' strategic decisions as to whether the on-site restaurant business should jump on to service mode extensions (i.e., if they were only serving dine-in customers before) or how off-site restaurant business could be better positioned in terms of marketing. Especially, service mode extensions are not easy decisions to make and the decisions should be carefully made based on the brand and the strengths of each restaurant (Fitzpatrick, 2017), thus emphasizing a possible contribution of the findings to the industry. Moreover, considering the importance of enabling off-site diners to conveniently obtain, pay, and eat pay the carryout/delivery meals, various operational considerations may be made such as investing in enhancing the mobile app technology and seamless membership and purchase history access to retrieve frequent orders. In case of satisfying consumers' polychronicity needs while having restaurant meals, secure and compact designs of carryout/delivery packages and bags would be of consideration for allowing consumers to readily engage in any other activities while picking up, moving, and eating the food. Lastly, since solo diners showed greater polychronicity-seeking and anticipated less enjoyment in on-site dining,

restaurants that have a good deal of solo diners in their dining room (e.g., airports, convention centers, business areas of metropolitan cities, college towns) or restaurants targeting solo diners may wish to equip facilities to ease their "multitasking". Several examples may include free access to Wi-Fi, electrical outlets, on-table tablet devices, reading materials, spacious personal spaces, and adequate heights of tables and chairs for activities beyond eating. These and other strategies would naturally enhance the solo diners' enjoyment of on-site dining at the same time, which in turn would result in increased revisits from those diners.

Finally, study three provided a valid and reliable SoDF scale to measure whether restaurants are offering solo diner friendly food and services, offering a useful tool for research and practice. While the findings of study one and two offered an understanding of solo diners' particular motives and menu item (healthy vs. indulgent) or service mode (on-site vs. off-site) preferences compared to group diners, solo diners' preferences and needs for practical restaurant operational dimensions and attributes were not known. In this regard, the SoDF scale identified three service and food dimensions of restaurants, i.e., *Inconspicuousness*, *Proper Service*, and *Healthy Menu Items*, that could enhance solo dining experiences and their subsequent return intentions. Also, despite the presence of a few previous studies that attempted to document the important restaurant dimensions for solo dining outcomes, limitations existed with each of the studies. To address the limitations in the prior studies, the SoDF scale was built upon the extensive review of solo dining-related literature and in-depth interviews with solo diners. The scale was further refined using a nationwide online sample of solo diners with exploratory and confirmatory factor analyses and validated by nomological validity testing. The validation also included a comparison of the effect of scale dimensions on solo dining enjoyment and revisit intentions with group dining.

Specifically, solo diners' preferences for being inconspicuous (i.e., *Inconspicuousness* dimension) as a solo diner in the restaurant was consistent with solo diners' fear of being negatively viewed by other diners in the literature. In order to satisfy solo diners' needs, the three items of *Inconspicuousness* dimension suggested the careful attention and services from the host, specifically, not seating them in the middle of large groups and not making obvious that they are solo (e.g., restraining from largely asking "are you alone?" question), connecting to the last item, not making them embarrassed because of dining alone. The fast and attentive service from the host and server in the *Proper Service* dimension also confirmed the solo diners' utilitarian

orientation and preference in time saving noted in the first and second studies as well as previous literature. It was the same for *Healthy Menu Items* which demonstrated the importance of availability of healthy and low-fat menu items for solo diners. However, the other items under the *Proper Service* dimension newly added to the knowledge by suggesting that the server also needs to allow solo diners to sufficiently enjoy their solo time and thus, be attentive only "properly" and not approach them much more than would be expected for general dining groups. Furthermore, besides the SoDF scale, study three also showed that small one-person tables, nearby location, a not noisy environment, menu items meeting personal dietary needs, and quickly available servers when needed might also be important factors to be of consideration. For research, these items may be included as single-item measures for future solo dining studies and, for restaurant operators, adopting these changes (while changing the location of already existing restaurant would be difficult) may contribute to increased revenues from visits and revisits of solo diners. The importance of proximity and reasonable food price for solo diners compared to that of group diners was also confirmed from responses to the informational questions, thus offering additional insights for restaurant operations and opportunities for future research.

Lastly, in addition to the implications suggested by the SoDF scale, the review of the literature ranging from qualitative interview studies with solo diners to qualitative solo dining-related text analysis studies to quantitative solo dining model testing (e.g., Goode, 2018; Han, 2018; Heimtun, 2010; Her & Seo, 2018; Lahad & May, 2017; Ratner & Hamilton, 2015) and the in-depth interviews with solo diners in study three also offer various examples of what contributed to their negative dining experiences in restaurants. Several examples that were noted by solo diners from their perspectives during eating out alone in restaurants include: (1) Server's public discussions of party size; (2) Negative host or server reactions to a solo party; (3) Overly frequent table touches; and (4) Being forced to share a table with others. There are indeed many solo diners who are not concerned about dining out alone and even actively enjoy the dining experiences by themselves. However, some solo diners, particularly those who are not experienced and new to solo dining or who find it necessary to dine solo (i.e., context-determined), may have fears of feeling lonely, feeling marginalized, and being negatively judged by others about their sociability, which in turn, negatively influences solo diners' enjoyment of the dining experiences and return intentions. In this regard, from a restaurant perspective,

training of service staff using suggestions from the results of the third study, such as letting solo diners less inconspicuous during greeting and seating them (e.g., not placing expectations that one person will be accompanied by a later dining company) and properly attentive to solo diners by letting solo diners enjoy their own time (e.g., to not stereotype solo diners or assume that solo diners require more server attention as they may be lonely) may improve the restaurant dining experience for solo diners.

In summary, this dissertation provided a number of theoretical and practical insights in regard to solo diners' motives, preferences, and behavioral intentions in on- and off-site restaurant dining compared with group diners through a series of three different studies. Nevertheless, the findings in the first and second studies were limited in their external validity as the studies used hypothetical scenario-based surveys, calling for future studies to validate the findings in the field setting. Also, all three studies specifically focused on the solo dining in casual dining restaurants in the U.S., uncovering future study opportunities for the comparisons of the findings in other restaurant types as well as other cultures and countries. A number of population and market statistics reports across the world support the trends in the rise of single person households, the rise of people spending time alone, the rise of people enjoying solitude, the rise of solo consumers in the market, and the subsequent rise in the number of solo diners. Thoughtful considerations about how to wisely respond to this new era of societal and cultural trends, making timely strategical decisions, and executing any important operational changes might decide the very future (maybe tomorrow) of many businesses in this competitive restaurant industry.

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