





Article

Factors Influencing Dietetic Interns' Dietary Habits during Supervised Practice

Courtney Weese, Katie M. Thompson , Adalyn White, Brianne Oronoz, Karli Breinholt, Dawson V. Croxall, Kelzie Devitt, Marin Easton, Madison L. Gunter, Breann McFarlane, Kaitlyn Reich, Jenna Sacks, Lacie Peterson , Rebecca Charlton , Holly Hopkins  and Katie N. Kraus *

Department of Nutrition, Dietetics & Food Sciences, College of Agricultural and Applied Sciences,
Utah State University, Logan, UT 84322, USA

* Correspondence: katie.kraus@usu.edu

Abstract: Supervised practice is a prerequisite to becoming a registered dietitian. Research suggests that environmental and social factors may affect dietary choices. This focus group research aimed to gather opinions from dietetic interns to understand what factors related to supervised practice, if any, affected their dietary habits. Qualitative data were collected via seven recorded virtual focus groups in which trained moderators facilitated a discussion using a series of controlled questions. Participants, dietetic interns ($n = 42$) who were currently completing or had completed their supervised practice within the previous six months, attended one of seven virtual focus groups. Each focus group had five to eight participants. Transcripts were separately coded by two trained researchers using a grounded theory approach to identify themes and subthemes. Researchers discussed any disagreements in coding and established a consensus. Elements related to the dietetic internship were observed to influence participants' dietary choices. Main themes included time, finances, food access and availability, physical and mental effects, non-supervised practice factors, and social factors. Dietetic programs and preceptors should explore ways to raise interns' awareness and minimize the potential negative impacts of these factors on interns' dietary habits to improve their overall internship experience.

Keywords: dietetic intern; dietary habits; preceptors; finances; food access; time; supervised practice



Citation: Weese, C.; Thompson, K.M.; White, A.; Oronoz, B.; Breinholt, K.; Croxall, D.V.; Devitt, K.; Easton, M.; Gunter, M.L.; McFarlane, B.; et al. Factors Influencing Dietetic Interns' Dietary Habits during Supervised Practice. *Dietetics* **2023**, *2*, 71–82. <https://doi.org/10.3390/dietetics2010007>

Academic Editor: Bahram H. Arjmandi

Received: 28 September 2022

Revised: 17 January 2023

Accepted: 19 January 2023

Published: 8 February 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Supervised practice in a dietetic internship, coordinated program in dietetics (CPD), or Future Education Model is a prerequisite to taking the Registered Dietitian (RD) Exam, as outlined by the Accreditation Council for Education in Dietetics (ACEND) [1] and the Commission on Dietetic Registration [2]. This experience is a critical aspect of a dietetics education as it builds interns' (students participating in an ACEND-accredited supervised practice experience) confidence, knowledge, skills, and competence to practice as an RD [3]. Supervised practice is a situation with the potential to influence eating behaviors.

Interns are required to complete a minimum of 1000 h of supervised practice under the supervision of a preceptor (RD or other qualified professional) [1]; this time commitment is often comparable to a full-time job. In many instances, interns are required to move to multiple cities to complete various rotations in the areas of community nutrition, clinical nutrition, food service, and management. Interns are expected to adapt to new schedules, learn under multiple preceptors, and apply their knowledge under constantly changing circumstances. Interns' dietary choices may be impacted by time restraints [4] (p. 4) [5] or the desire to model their preceptors' behavior [6]. The unique challenges of supervised practice coupled with known elevated risk of disordered eating [7,8] may put interns at elevated risk for poor nutrition during their supervised practice. The aim of this focus group study was to gather opinions [9] (p. 7) from a wide variety of dietetic interns in the

United States (US) in order to understand what factors related to supervised practice, if any, affected their dietary habits. Greater understanding of factors influencing interns' health could inform future interventions and dietetics program policies.

2. Materials and Methods

After receiving approval from the university Institutional Review Board (Protocol #12125), a survey gathering participant demographic information was distributed, and seven recorded virtual focus groups were held with a purposive sample of dietetic interns. Focus groups were held virtually to easily include participants throughout the US rather than limiting participation to those who lived in close geographical proximity to the researchers' university. Emails were sent to all dietetic program and dietetic internship directors in the US listed on the Accredited Program Directory on eatright.org [10] requesting that they forward an email invitation to their current interns and those who had completed their supervised practice within the previous six months. Researchers anticipated that participants who had recently completed their supervised practice would possess a good recollection of the factors that influenced their dietary habits during that time. Directors were asked to forward the study information without adding any wording that might unintentionally pressure students to participate. In the informed consent document, participants were informed that participation was voluntary, that they could withdraw at any time without consequence, and that their choices regarding participation would not affect their grade or standing in any class or internship now or in the future.

Interested interns followed the link in the email and consented to participate in all parts of the research study. They then completed a survey which included questions about demographic information and their dietetic program. Eligible participants (those whose survey responses indicated they were currently completing their supervised practice or had completed their supervised practice in the previous six months) were then directed to sign up for a virtual focus group that was convenient for them and were sent a Zoom link. Any individuals who did not meet that criteria received a message that informed them that they were not eligible for the study and were thanked for their time. Each focus group had 10 spots available; it was intended that at least five to eight participants would be present in each focus group to promote adequate discussion and data saturation [9] (p. 6), [11]. An email reminder that included a frequently asked questions (FAQ) document that provided information about adjusting Zoom features (e.g., changing profile name to first name and last initial, utilizing the gallery view, etc.) was sent 24 h before participants' scheduled focus group.

Prior to the study, the surveys and focus group script were developed and refined by four RDs who directed dietetic programs and/or supervised interns. The focus group script was designed using the outline provided by Kruger and Casey: welcome participants and set ground rules, start with open-ended questions regarding factors that influenced dietary habits, follow up with probing questions as needed, assistant moderator summarizes participant comments, final question asks if anything was missed [9] (pp. 39–75). These tools were then piloted with 12 undergraduate CPD students to ensure that the survey questions were comprehensive, the focus group script accurately elicited relevant conversation, and all wording was clear and understandable.

Focus groups lasted 1–2 h [9] (p. 68) and were conducted exclusively by student researchers to help participants feel comfortable [9] (p. 106) and eliminate the risk that participants would censor their comments if dietetics faculty members were present. At the beginning of the Zoom meeting, the moderator emphasized that all perspectives were welcome, re-shared the informed consent and FAQ document, and provided a link to an online survey. The survey included questions regarding interns' usual dietary habits during their supervised practice experience. Survey responses were not included in analysis; the survey was intended to help interns reflect and recall how supervised practice may have impacted their dietary habits, if at all, in preparation for the focus group discussion [9] (p. 49). All participant information from surveys or focus group discussions

were securely stored in an encrypted, password-protected online storage system. The key questions from the focus group are listed below and were explored in a guided discussion format. Probing questions and reflections were used, as necessary, to facilitate discussion. (See Supplementary Materials for full focus group script).

1. Which factors, if any, influenced interns' dietary habits?
2. Did dietary habits improve or decline during supervised practice?
3. Which habits, if any, persisted (or were anticipated to persist) beyond the supervised practice?
4. What resources would assist interns in improving their dietary intake?

The assistant moderators confirmed that moderators asked all questions in the same order. At the end of each focus group session, participants received a \$15.00 Amazon gift card via email. The researchers do not believe that this incentive would influence participant answers.

The Zoom software recorded a video of each focus group and automatically generated an audio transcription. The transcription was verified by trained researchers. A grounded theory approach was used when analyzing the data [12]. Teams of faculty and student researchers manually reviewed 2–3 transcripts each and identified preliminary coding categories [13]. Two trained researchers, supervised by the corresponding author who has previous experience in analyzing qualitative research, then independently manually coded the first focus group transcript. Any disagreements were discussed and a consensus was reached. A codebook with detailed inclusion and exclusion criteria for each code category was then created [13]. The two trained researchers, supervised by the corresponding author, then independently manually coded the remaining transcripts and adjudicated any discrepancies. The target percent agreement [14] between the two coders was set at 85%, which would provide adequate inter-coder reliability [15]. Each main theme was discussed in each of the seven focus groups with no new themes emerging, indicating data saturation [9] (p. 23). Demographic information was used for descriptive purposes and was not included in analysis.

3. Results

A total of 58 participants completed the initial survey, though 42 participated in one of the seven focus groups (40% attrition). Those who dropped out cited scheduled conflicts or provided no reason. Participants (95% female) were 20–40 years old and were students in varying types of dietetic programs (see Figure 1). Most (88%) participants were completing supervised practice at the time of the study; 12% had completed their dietetics program within the previous six months. Interns were located in 22 states and one US territory (see Figure 2).

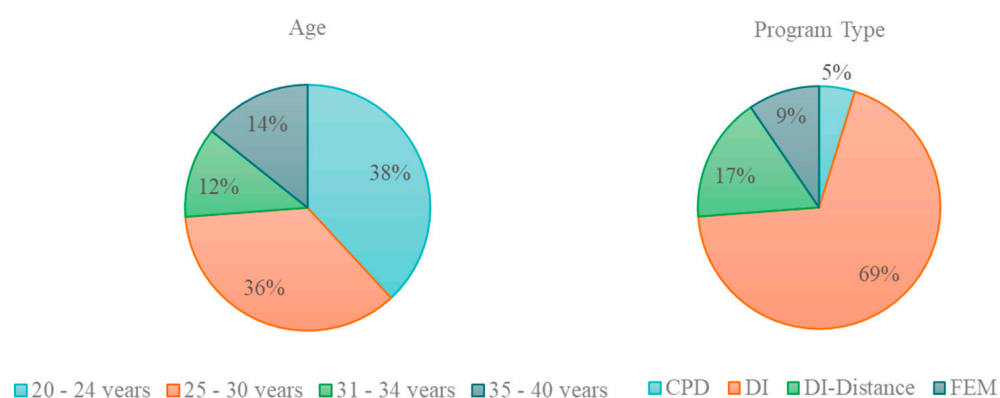


Figure 1. Dietetic intern participants' ($n = 42$) age and program type. CPD = Coordinated Program in Dietetics (Bachelor's and graduate level—dietitian coursework and at least 1000 h of supervised practice for RDN eligibility (combined program). DI = Dietetic Internship (Post-bachelor's—at least 1000 h of supervised practice only for RDN eligibility). FEM = Future Education Model (Graduate-level, competency-based dietitian nutritionist program that integrates coursework and at least 1000 h of experiential learning for RDN eligibility).

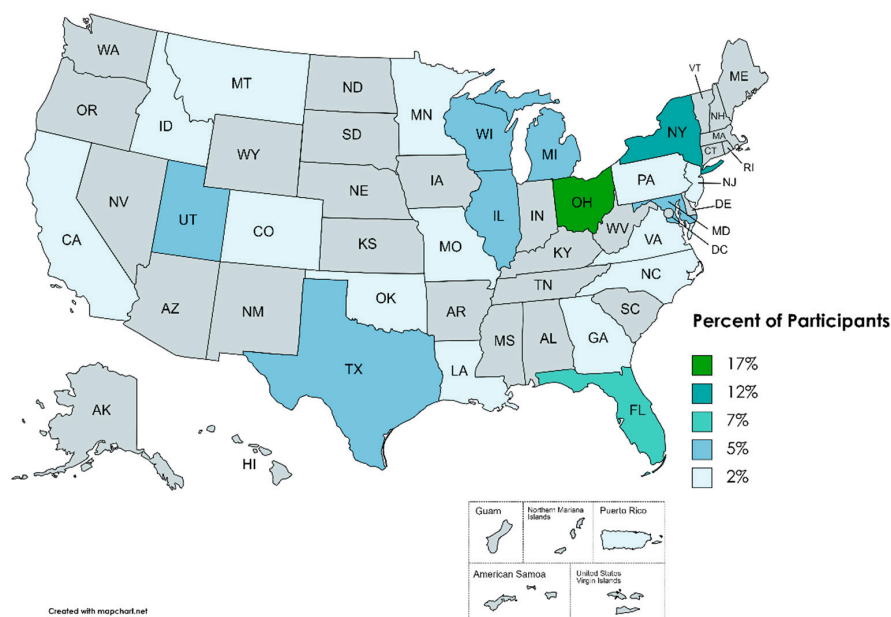


Figure 2. Dietetic intern participants' ($n = 42$) location of internship and percentage of participants that had internships in that location.

The assistant moderators ensured that moderators asked all questions in the same order during each focus group. One limitation existed in this regard; in one focus group that lasted longer than usual, one question (“What was the biggest factor that influenced your dietary choices?”) was omitted. Two researchers coded all seven focus groups and had an average percent agreement of 85%.

After focus group transcripts were coded, the following major themes emerged: time, finances, food access and availability, physical and mental effects, non-supervised practice factors, and social factors. Corresponding subthemes and select quotes are displayed in Table 1.

Table 1. Themes, subthemes, and representative quotes from dietetic interns ($n = 42$) regarding factors that influenced their dietary intake during supervised practice.

Time	
Internship Demand	<p>"It was just like a very time-consuming part of my life ... There is this high expectation for interns to just like go, go, go. You're in this time of learning. You have to absorb as much as you can ... We're still students, and we still have to have like some personal boundaries of just being able to have lunch and being able to take a break when we need to ... there is a culture that is expected of you to stay late or to do additional work outside of your business hours, which is really unfortunate for interns." (FG2:P5) *</p>
Allotted Time for Food Breaks	<p>"... for me lunch is kind of like a break from the internship and some preceptors have had us like work through our lunch ... and also like chart or whatever, and I think that, for one, it doesn't really help me focus on what I'm eating or how much I'm eating and then for two it's not very restful either like I don't feel you know ready to focus after I eat my lunch." (FG3:P4)</p>
Time for Shopping and Preparation	<p>"I think time. It's like the biggest factor for me more so with like prep and like weekends, if I don't have as much studying to do or things going on during the weekend that I can get a lot more prep done in the week ... whereas if it was a busier week ... just don't really have it in me that maybe I don't eat as much or just like more the easier choices and sort of like prepping something that I can kind of throw in the microwave or something." (FG7:P5)</p>
Commute	<p>"So, my clinical rotations are ... pretty far, but it's really the traffic here is awful. I mean it took me 55 min today ... to drive six miles ... You can't go anywhere without sitting in traffic. So yeah, I mean honestly just eating like granola. Like I eat that way more than I want to, and just finding stuff that I can grab and eat." (FG2:P1)</p>

Table 1. Cont.

Finances	
Limited Income	“I had like saved for a year before I started my internship program, but I was living off my savings the entire time. And I had a grad assistantship that gave me like a couple hundred every two weeks, but at the end of my program, I had no money left . . . I would say finances definitely controlled like what I was eating, the kinds of food I was buying.” (FG6:P4)
Resource Assistance	“We’re super spoiled in our internship. They provide the food and the housing, and they actually give us a stipend. So, we’re able to like buy food for off-site rotations or rotations that don’t like provide us food . . . ” (FG6:P1) “ . . . I actually applied for food stamps throughout my internship and that’s basically how I was able to fund a lot of my foods and I understand and I’m so grateful that I was able to do this because this is not an opportunity that a lot of people get but, that was one of the biggest things for me, otherwise, I truly don’t know how most people could get by and eat healthy, at the same time it’s just really, really hard, the way that dietetic internships are structured period.” (FG5:P2)
Food Access and Availability	
Food Available or Provided at Rotation	“Some of my rotations are in places where there is not anything really that accessible for food. I’ve been really thoughtful and it’s forced me to pack my lunch . . . almost every day . . . when I was a student I didn’t necessarily feel forced to kind of plan ahead and that way, and I think from that perspective it’s definitely been helpful for me. Because I might have been more likely to do something like you know get soup or something from the cafeteria or just something else if I didn’t have that so I’ve saved a lot of money, I think, in that regard too.” (FG7:P1) “ . . . the facility I am at, they are really doing a good job at reusing their foods. Trying to reduce food waste. But still, there are some things they are going to toss out especially vegetables . . . I don’t want them to throw away, so I will take the vegetable. So that’s why I eat more vegetables than before.” (FG4:P2)
Food Access Outside of Rotation	“ . . . I did my undergraduate education in [location], . . . there’s ample opportunity for food in that city, like any type of food you could ever want any time of day . . . you could get . . . very ethnic cuisine that was like delicious. You could go anywhere; it was like super easy to . . . have relatively budget friendly options that were pre-made for you. . . . where we lived in [location], which was by no means a food desert and still had very, very good food access it just wasn’t . . . as readily accessible. It required a lot more like preparation and going to the store and picking it yourself and the places that one could eat out at like tended to close at like seven or eight o’clock which I was just not accustomed to, because I feel like where I grew up things were like basically never closed.” (FG4:P2)
Physical and Mental Effects	
Physical and Mental Load	“Can we all agree that stress does? [laughing and nodding from other participants]. I know, for me, when I get stressed out, I just want to come home and eat . . . not even if it’s like the time [air-quotes] for me to eat . . . knowing that I can come home and have like a comfort meal or something has always affected it. Or like celebrating being done with a rotation or doing a big presentation was always nice to like go out to dinner or something [nodding from other participants]. Or go to my parents’ house for a few drinks to talk about things, like that’s always been something that’s been like a schedule for me, I guess during all my rotations.” (FG1:P1) “I think I struggle, because I’m . . . not wanting to do the effort and all day all I read about and talk about and think about is nutrition that when it comes to myself. Part of me feels like the stress to like do the right things, and the other part of me is like you’re good like chill out . . . All I do is work on nutrition all day long that I don’t want to work on my own, because I feel like that’s even more schoolwork and I don’t want to be my own patient.” (FG3:P2)
Energy	“There’s a lot of effort to like, like y’all said, to cook a meal. Like who wants to do that? Especially after food service rotation? Nobody, nobody!” (FG2:P4)

Table 1. Cont.

Non-Supervised Practice Factors	
Health/Exercise	"... I'm thinking of you sports wise. I love trying to get in physical activity after sitting at a desk all day ... Yeah trying I guess like a lot of like high protein foods, based on like working out, but then also making sure like carbohydrate sources ... " (FG1:P2)
Additional Personal Responsibilities	"... I just had a baby last January, ... I would have to like book into the cafeteria to like get food because I didn't have time to make it in the morning and then I'd have to like book it to the other side of the hospital to find like a nursing, a lactation room, so I could go pump and that would be like pumping and like shoveling in the food." (FG5:P4) "... we have like supervised practice like three or four days a week, and then we have classes, the other two. And then I'm working practically every weekend ... it's been really hard to like have an established eating pattern ... " (FG3:P3)
Preference	"... right now, I'm in a food service rotation at a high school, and sometimes I'm eating their food, sometimes I'm not. It just kind of depends on if it looks appealing to me ... " (FG1:P1)
Social Factors	
Living Situation	"... I think my eating patterns would definitely be much worse if I didn't have family nearby ... who can like make stuff for me on the weekend, and I can just go pick it up and like kind of meal prep throughout the week. That definitely ... impacts my dietary patterns in a positive way." (FG2:P5) "I moved. So, I'm married, and I actually live in [location]. But I got selected for an internship in [location], so I'm living here by myself, and it's just different, you know, when you go from cooking for multiple people to cooking for yourself." (FG2:P1)
Cultural Influence from Rotation	"... I feel like my eating. ... choices have improved ... because of being more conscious in like, "Okay, I'm doing this internship, so I can help people, you know, better their lives and their overall health, so I should be ... doing the same thing or being able to reflect that rather than just preaching it."" (FG6:P2) "I was in the eating disorder clinic ... It was like a group partial hospitalization, so we were eating with the group, and so I made sure that whatever I had was balanced ... my preceptor specifically mentioned like, 'Do not bring dry salads. Do not bring ... just plain vegetables ... you need to bring a full meal.'" (FG4:P4)
Intern Influence	"The other interns and I if we have a particularly stressful week, we will say, 'Okay, who wants to go out to a bar?' and we'll just go together as a group ... to the bar and drink a little bit and, which ends up being us eating all the junk food" (FG7:P2)
Patient Influence	"... one more thing is putting myself into the shoes of a patient ... They generally eat like these types of products [specific protein supplement drinks] that I've never had. I love going out to get them, so then I can ... have that connection." (FG1:P2)
Preceptor Influence	"... I find myself doing what my preceptors are doing. So, if my preceptor is taking a lunch every day, great. If they're eating at their desk that's also what I'm doing." (FG3:P6) "... I was like afraid of like eating in front of her and seeming like unprofessional ... I wanted to make a good impression so it's like maybe I shouldn't eat in front of her ... or I didn't want to like eat something like less healthy in front of her ... I was afraid of her judgements ... " (FG5:P4) "I'm in long-term care. They will bring in bagels for us, and she [the preceptor] wanted to eat two [but] ... said, 'I don't want to be a fatty.' So, she makes lots of weight centered comments that as a larger person myself, it is not fun to hear." (FG4:P4)
* FG = Focus Group; P = Participant	

3.1. Time

The most ubiquitous theme was time; this included internship demand (e.g., feeling very busy, expectations to work after typical business hours), time to shop for and prepare meals, time allotted for eating during supervised practice, and time spent commuting to and from rotation sites. Many interns reported having to work through lunch; though, others enjoyed scheduled lunch and snack breaks. For some, having longer commutes allowed for eating while sitting in traffic or while utilizing public transportation. For others, longer commutes meant leaving earlier in the morning and returning later in the evening, which affected their breakfast and dinner.

3.2. Finances

The impact of limited financial resources was also discussed. Participants noted that the inability to work and earn money due to the time-intensive nature of their supervised practice made it challenging to allocate funds for food. However, the financial situation varied among participants. Some utilized unemployment and food assistance program benefits, while others had housing, meals, and stipends provided by their program. The presence or absence of financial support from families also played a role.

3.3. Food Access and Availability

Participants emphasized that physical access to food impacted their dietary intake. While some interns had access to snack foods, cafeterias, and/or lunch provided while at their rotation site, others did not. In some instances, limited options available at the rotation prompted interns to prepare and pack healthy foods. Having a physical location to eat and the presence of (or access to) appliances for storing and heating food also influenced their food options. Though infrequently mentioned, COVID-19 mask regulations, social distancing policies, and cafeteria closures impeded interns' ability to freely consume food and beverages and eat in traditional spaces. Separate from supervised practice, access to grocery stores, limited access to fresh produce in remote locations, and limited hours of operation for restaurants influenced interns' dietary intake.

3.4. Physical and Mental Effects

The physical demands of foodservice rotations, overall lack of energy, stress, low motivation, and emotions affected participants' dietary intake. One student reported their supervised practice experience resulted in "... a different type of exhaustion ... " (Focus Group (FG)4:Participant (P)4). One participant said, "... the most exhausting part of my internship ... was ... inconsistency. I never was going to bed at the same time, waking up at the same time. What I was doing ... and who I was interacting with was changing day to day ... Every week you're ... starting from scratch ... It's more ... emotionally draining [than] other ... full time work ... " (FG4:P2). Some participants noted difficulty concentrating, having insufficient energy to prepare healthy foods, eating less due to stress, or increased prevalence of overeating due to excess hunger, and emotionally eating for comfort or to celebrate accomplishments. Some participants described adaptations to their circumstance, such as prioritizing healthy eating to promote wellbeing, utilizing meal planning and meal prep, and packing snacks to fuel them throughout the day.

3.5. Non-Supervised Practice Factors

In addition to personal preferences, participants described various health or physical activity-related goals that influenced what and when they ate. Personal responsibilities (e.g., family responsibilities, work, graduate school) also impacted their dietary intake.

3.6. Social Influences

Interns' dietary intake was also affected by a variety of social factors. Their living situation, including where and with whom they lived, partially determined their access to appliances, cooking responsibilities, and motivation to prepare food. Participants' dietary intake was influenced by their interactions with clients/patients, other interns, and preceptors. Some felt motivated to eat healthily to model healthy eating for their patients and "practice what they preached". Interns also reported trying new foods based on foods offered at their rotation site, or recipes or foods discussed with patients or others. Though infrequently mentioned, some interns felt inclined to "rebel" by eating poorly after being immersed in nutrition information during their supervised practice. Preceptor influence varied; some interns avoided snacking or eating unhealthy foods to make a good impression and avoid judgement. Other interns shared that preceptor comments introduced pressure to eat less healthy, or to eat more. Though only mentioned once,

weight-biased comments from a preceptor prompted an intern to be concerned about their own weight and dietary choices.

3.7. Overall Changes in Diet

The majority of the comments suggested that factors discussed were barriers to healthy eating and that eating required more effort from students than they were used to. When asked if their diet improved or declined during supervised practice, most comments indicated an overall improvement. However, other comments indicated a decline, no change, or a combination of improvement and decline in dietary habits.

3.8. Habits Anticipated to Continue after Supervised Practice

Participants indicated wanting to continue eating balanced meals and snacks at consistent intervals, planning and preparing meals ahead of time, mindful eating, and avoiding distractions during mealtimes. Some participants noted improvement in viewing food with a flexible or “all foods fit” mentality. One participant said, “I think my diet quality has declined, but my diet mentality has improved. That’s a good quote! Put that somewhere [laughing]! . . . I’ve grown exponentially in the realm of intuitive eating, mindful eating recognizing, ‘Am I having this Ben and Jerry’s to celebrate? Or am I having it because I’m trying to numb something else?’ So, while I might have had more Taco Bell in this season of my life . . . , growing in self-control, moderation, and . . . the mentality around diet, I think I’ve done phenomenally well . . . ” (FG1:P6).

3.9. Helpful Resources

Participants suggested that financial resources (e.g., stipends, meals provided at rotations), more time or decreased demands on their time, improved preceptor communication, as well as resources to improve their own health such as individualized nutrition assessment and counseling, and ideas for inexpensive and healthy meals would help improve their diets.

4. Discussion

Interns straddle the roles of students and health professionals; therefore, factors that influenced interns’ dietary intake had overlap with factors that influenced college students (social factors, food access and availability, finances) and health professionals (time, food access and availability). However, cooking skills were not a major factor identified in the current study, perhaps because interns have a vested interest in food preparation [16] and/or they had received training during their course of study [17].

As seen in previous research, lack of time due to busy schedules affected eating choices [18–20]. Similar to research in the workplace, the supervised practice environment pressured some interns to work extra hours or not take breaks, both of which impacted their dietary intake [19–21]. Participants mentioned a lack of energy for planning and cooking nutritious meals after coming home from supervised practice. This is unfortunate because previous research suggests that engaging in healthy dietary patterns can mediate stress and burnout associated with the fast-paced, time-sensitive, and emotionally intense work environments that are often present in medical settings [22].

Some interns mentioned that having a set time for lunch or breaks helped them eat throughout the day. Interns who had to work through lunch or breaks tended to go long periods of time without eating or chose quick and convenient foods. Several participants noted limited time for shopping and food preparation. Previous research among college students suggests that time spent in food preparation is positively associated with diet quality [23].

Participants noted that inability to work and earn money due to the time-intensive nature of their supervised practice made it challenging to obtain food. Though limitations in methodology exist, food insecurity rates among college students range from 15 to 41% [24–26]. Dietetic interns may have additional factors influencing risk for food insecurity. Most dietetic programs that include supervised practice are a full-time, unpaid experience that leaves limited to no time for outside work. Some interns utilized food

assistance programs, free meals provided at supervised practice rotations, or financial support from family. This was less of a concern for those whose dietetics program or supervised practice rotation offered stipends [24].

Having food available during supervised practice impacted dietetic interns' diets. Though the food provided at supervised practice rotations varied in nutritional quality, it proved helpful for some interns as it saved them time and money. These findings are similar to research among employees [21]. However, it is likely that free food is especially beneficial to unpaid interns. Some interns reported that not having food available at their supervised practice rotation site forced them to prepare their own food. As mentioned previously, time spent preparing food is related to diet quality [23]. The environment outside of rotations also influenced the participants' dietary choices. Interns noted that relocating to complete supervised practice impacted dietary factors due to reduced familiar food choices or availability, which was similar to barriers experienced by migrant populations [27]. Similar to previous research [28], participants who interned in food deserts experienced a decrease in fruit and vegetable consumption. Participants noted maximizing opportunities to obtain vegetables at rotations when available.

Participants emphasized the role of stress and resultant indulgence in more processed, convenience, and comfort foods, which parallels previous research among medical professionals, college students, and undergraduate dietetics students [29–31]. The desire to celebrate accomplishments or soothe negative emotions influenced many participants' food selections and amounts consumed. While the link between emotion and diet is complex and involves various neural connections, including the food reward pathway, it is apparent that emotion influences dietary patterns [32]. Further, interns reported an increase in emotionally-driven bingeing behaviors which were evoked by stressors throughout supervised practice. This aligns with literature that suggests that dietetic students and dietetic professionals were at higher risk for developing disordered eating behaviors and eating disorders [7,8]. As emotional dysregulation is frequently associated with disordered eating habits and progression including bingeing, purging, and restriction, it is important to address and manage triggering emotions so as to discourage the development of true eating disorders, especially among high-risk populations [33].

Participants noted diminished focus due to eating irregularly or infrequently. Tahara et al. reported that feelings of dullness, exhaustion, anxiety, and nervousness were associated with disruptions in meal timing [34]. Similarly, another systematic review identified decreased cognitive performance in those who skipped breakfast compared to those who did not [35]. As dietetic interns are involved in assessing and making recommendations for clients and patients, having optimal mental focus is essential.

Though not related to supervised practice, factors such as preference [36] and personal health goals [37] played a role in interns' dietary choices. Understandably, outside responsibilities such as work, family obligations, and graduate school were also impactful [38].

For some interns, relocating was necessary to complete their supervised practice; other interns lived at home with family. In a study of female dietetic students in Japan, those who lived away from home were less likely to meet their nutrient needs [39]. This was similar to the focus groups' expression of dietary changes that occurred when they relocated to complete supervised practice. However, interns who had housing and meal plans provided by their supervised practice site described food access similar to college students living on-campus and eating in campus dining facilities. Previous research suggests that students who live on campus had higher diet quality and fewer skipped meals [40].

Interns were influenced both positively and negatively by those around them. As seen in previous research, interns tended to eat similar foods and at similar times as those in their social environment [41]. This may have been due to social modeling [6]. Alteration of food choices may be especially prominent when individuals want to be affiliated with the other person [4]. The preceptor, in this instance, acted as the social model for some interns [42]. In other instances, the preceptor requested for the intern to be the social model for the clients or patients. Often, interns followed their preceptors' lead and only ate or took a

break when their preceptor did. Though only mentioned by one participant, preceptor use of weight-stigmatizing language impacted an intern's diet. The literature noted individuals who experienced weight-stigma from RDs demonstrated increased anxiety, body image dissatisfaction, negative psychological stress responses, and disordered eating—especially increased binge eating behaviors [43,44].

The fact that many interns noted an overall improvement in diet despite previous comments about barriers to healthy eating suggests that interns made positive adaptations (e.g., packing food, meal prep, snacking). However, the first participant's response to this question may have influenced subsequent responses. Having the moderator reiterate that all viewpoints were welcome (including those that were different from those previously shared) may have proven beneficial [9] (p. 120).

This study had many strengths, including adequate inter-coder reliability [15]. In addition, having focus groups led by researchers who were current dietetic interns (instead of dietetic program/internship faculty) likely promoted an atmosphere in which participants could freely share their thoughts and feelings [9] (p. 106). Utilization of a script promoted uniformity and consistency. With regards to gender, the focus group participant demographics closely matched the current demographics of practicing RDs [45].

This study was limited by a 40% attrition rate; however, as data saturation was achieved, this likely did not impact the study findings. Participant race and ethnicity was not collected. Therefore, comparison to current representation among RDs was not assessed; however, this could be researched in the future. In this study, three researchers served as moderators; having one moderator lead all groups may have heightened consistency.

The findings from this research suggest several practical applications that dietetic programs and preceptors can incorporate. Dietetic programs are encouraged to provide preceptors with training to raise awareness of interns' unique challenges; this training would prepare preceptors to provide resources, aid, and clear expectations for managing those challenges [46–48]. Before an intern begins their supervised practice, program directors should raise awareness of factors influencing dietetic interns' dietary intake, as well as related resources. Dietetic programs should also consider providing quick and budget-friendly recipe ideas and provide food stipends and/or cafeteria meal passes when possible. Preceptors should be aware of interns' heightened awareness of judgment on food choices and frequency of eating. Preceptors can support interns by communicating appropriate meal and snack timing and length, supporting autonomy related to food choices, and being mindful of their words and actions related to food. Future prospective studies that objectively assess interns' food access, meal frequency, and dietary choices compared to baseline would provide further insight into the impact of supervised practice on dietetic interns' dietary habits.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/dietetics2010007/s1>, Supplementary File: Focus Group Script.

Author Contributions: C.W., K.B., M.E., K.M.T., M.L.G., B.O., J.S., K.R., B.M., D.V.C., A.W. and K.D. performed focus groups and collected data. K.B., M.E., B.O., B.M., A.W., K.D., K.N.K., H.H., R.C. and L.P. participated in preliminary coding. A.W., K.M.T. and K.N.K. finalized coding and results. C.W., K.B., M.E., K.M.T., M.L.G., B.O., J.S., K.R., B.M., D.V.C., A.W., K.D. and K.N.K. wrote the first draft of the manuscript. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was approved by the Institutional Review Board of Utah State University (IRB Registration #: 12125, 6 December 2021).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. About Accredited Programs. Available online: <https://www.eatrightpro.org/acend/accredited-programs/about-accredited-programs> (accessed on 16 September 2022).
2. RD Exam Eligibility Requirements. Available online: <https://www.cdrnet.org/rd-eligibility> (accessed on 16 September 2022).
3. Barr, A.B.; Walters, M.A.; Hagan, D.W. The value of experiential education in dietetics. *J. Am. Diet. Assoc.* **2002**, *102*, 1458–1460. [CrossRef]
4. Caswell, J.A.; Yaktine, A.L. Committee on Examination of the Adequacy of Food Resources and SNAP Allotments; Food and Nutrition Board. In *Committee on National Statistics; Supplemental Nutrition Assistance Program: Examining the Evidence to Define Benefit Adequacy*; National Academies Press: Washington, DC, USA, 2013; p. 4.
5. Sogari, G.; Velez-Argumedo, C.; Gómez, M.I.; Mora, C. College students and eating habits: A study using an ecological model for healthy behavior. *Nutrients* **2018**, *10*, 1823. [CrossRef] [PubMed]
6. Cruwys, T.; Bevelander, K.E.; Hermans, R.C.J. Social modeling of eating: A review of when and why social influence affects food intake and choice. *Appetite* **2015**, *86*, 3–18. [CrossRef]
7. Tremelling, K.; Sandon, L.; Vega, G.L.; McAdams, C.J. Orthorexia nervosa and eating disorder symptoms in registered dietitian nutritionists in the United States. *J. Acad. Nutr. Diet.* **2017**, *117*, 1612–1617. [CrossRef]
8. Verzijl, C.L.; Ahlich, E.; Schlauch, R.C.; Rancourt, D. The role of craving in emotional and uncontrolled eating. *Appetite* **2018**, *123*, 146–151. [CrossRef] [PubMed]
9. Krueger, R.A.; Casey, M.A. *Focus Groups: A Practical Guide for Applied Research*, 5th ed.; SAGE: Thousand Oaks, CA, USA, 2014.
10. Accredited Programs Directory. Available online: <https://www.eatrightpro.org/acend/accredited-programs/accredited-programs-directory> (accessed on 8 December 2021).
11. Guest, G.; Namey, E.; Chen, M. A simple method to assess and report thematic saturation in qualitative research. *PLoS ONE* **2020**, *15*, e0232076. [CrossRef] [PubMed]
12. Harris, J.E.; Gleason, P.M.; Sheean, P.M.; Boushey, C.; Beto, J.A.; Bruemmer, B. An introduction to qualitative research for food and nutrition professionals. *J. Am. Diet. Assoc.* **2009**, *109*, 80–90. [CrossRef]
13. Bogdan, R.C.; Biklen, S.K. *Qualitative Research for Education: An Introduction to Theory and Methods*, 5th ed.; Allyn & Bacon: Boston, MA, USA, 2007.
14. Neuendorf, K.A. *The Content Analysis Guidebook*, 1st ed.; SAGE: Thousand Oaks, CA, USA, 2002.
15. Miles, M.B.; Huberman, A.M. *Qualitative Data Analysis: An Expanded Sourcebook*; SAGE: Thousand Oaks, CA, USA, 1994.
16. Linsenmeyer, W.; Rahman, R. Career motivations and aspirations of dietetic students: Applying the social cognitive career theory. *Internet J. Allied Health Sci. Pract.* **2021**, *19*, 1–7. [CrossRef]
17. Standards and Templates. 2022. Available online: <https://www.eatrightpro.org/acend/accreditation-standards-fees-and-policies/2022-standards> (accessed on 16 September 2022).
18. Verstraeten, R.; Van Royen, K.; Ochoa-Avilés, A.; Penafiel, D.; Holdsworth, M.; Donoso, S.; Maes, L.; Kolsteren, P. A conceptual framework for healthy eating behavior in Ecuadorian adolescents: A qualitative study. *PLoS ONE* **2014**, *9*, e87183. [CrossRef]
19. Venn, D.; Strazdins, L. Your money or your time? How both types of scarcity matter to physical activity and healthy eating. *Soc. Sci. Med.* **2014**, *172*, 98–106. [CrossRef]
20. Schröer, S.; Haupt, J.; Pieper, C. Evidence-based lifestyle interventions in the workplace—An overview. *Occup. Med.* **2014**, *64*, 8–12. [CrossRef]
21. Horton Dias, C.; Dawson, R.M.; Abshire, D.A.; Harris, D.; Wirth, M.D. Free food at work: A concept analysis. *Workplace Health Saf.* **2021**, *69*, 277–289. [CrossRef]
22. Esquivel, M.K. Nutrition strategies for reducing risk of burnout among physicians and health care professionals. *Am. J. Lifestyle Med.* **2020**, *15*, 126–129. [CrossRef]
23. Larson, N.I.; Perry, C.L.; Story, M.; Neumark-Sztainer, D. Food preparation by young adults is associated with better diet quality. *J. Am. Diet. Assoc.* **2006**, *106*, 2001–2007. [CrossRef]
24. Payne-Sturges, D.C.; Tjaden, A.; Caldeira, K.M.; Vincent, K.B.; Arria, A.M. Student hunger on campus: Food insecurity among college students and implications for academic institutions. *Am. J. Health Promot.* **2018**, *32*, 349–354. [CrossRef]
25. El Zein, A.; Shelnutt, K.P.; Colby, S.; Vilaro, M.J.; Zhou, W.; Greene, G.; Olfer, M.D.; Riggsbee, K.; Morrell, J.S.; Mathews, A.E. Prevalence and correlates of food insecurity among U.S. college students: A multi-institutional study. *BMC Public Health* **2019**, *19*, 660. [CrossRef]
26. Nikolaus, C.J.; An, R.; Ellison, B.; Nickols-Richardson, S.M. Food insecurity among college students in the United States: A scoping review. *Adv. Nutr.* **2020**, *11*, 327–348. [CrossRef]
27. Papadaki, A.; Scott, J. The impact on eating habits of temporary translocation from a Mediterranean to a Northern European environment. *Eur. J. Clin. Nutr.* **2002**, *56*, 455–461. [CrossRef]
28. Walker, R.E.; Keane, C.R.; Burke, J.G. Disparities and access to healthy food in the United States: A review of food deserts literature. *Health Place* **2010**, *16*, 876–884. [CrossRef]
29. Choi, J. Impact of stress levels on eating behaviors among college students. *Nutrients* **2020**, *12*, e1241. [CrossRef]
30. Hill, D.C.; Moss, R.H.; Sykes-Muskett, B.; Conner, M.; O'Connor, D.B. Stress and eating behaviors in children and adolescents: Systematic review and meta-analysis. *Appetite* **2018**, *123*, 14–22. [CrossRef] [PubMed]

31. Patten, E.V.; Vaterlaus, J.M. Prevalence of depression, anxiety, and stress in undergraduate dietetics students. *J. Nutr. Educ. Behav.* **2021**, *53*, 67–74. [[CrossRef](#)]
32. Godet, A.; Fortier, A.; Bannier, E.; Coquery, N.; Val-Laillet, D. Interactions between emotions and eating behaviors: Main issues, neuroimaging contributions, and innovative preventive or corrective strategies. *Rev. Endocr. Metab. Disord.* **2022**, *23*, 807–831. [[CrossRef](#)] [[PubMed](#)]
33. Henderson, Z.B.; Fox, J.R.E.; Trayner, P.; Wittkowski, A. Emotional development in eating disorders: A qualitative metasynthesis. *Clin. Psychol. Psychother.* **2019**, *26*, 440–457. [[CrossRef](#)] [[PubMed](#)]
34. Tahara, Y.; Makino, S.; Suiko, T.; Nagamori, Y.; Iwai, T.; Aono, M.; Shibata, S. Association between irregular meal timing and the mental health of Japanese workers. *Nutrients* **2021**, *13*, 2775. [[CrossRef](#)]
35. Hoyland, A.; Dye, L.; Lawton, C.L. A systematic review of the effect of breakfast on the cognitive performance of children and adolescents. *Nutr. Res. Rev.* **2009**, *22*, 220–243. [[CrossRef](#)]
36. Nederkoorn, C.; Houben, K.; Havermans, R.C. Taste the texture. The relation between subjective tactile sensitivity, mouthfeel and picky eating in young adults. *Appetite* **2019**, *136*, 58–61. [[CrossRef](#)]
37. Turner-McGrievy, G.M.; Wright, J.A.; Migneault, J.P.; Quintiliani, L.; Friedman, R.H. The interaction between dietary and life goals: Using goal systems theory to explore healthy diet and life goals. *Health Psychol. Behav. Med.* **2014**, *2*, 759–769. [[CrossRef](#)]
38. Quintiliani, L.M.; Bishop, H.L.; Greaney, M.L.; Whiteley, J.A. Factors across home, work, and school domains influence nutrition and physical activity behaviors of nontraditional college students. *Nutr. Res.* **2012**, *32*, 757–763. [[CrossRef](#)]
39. Kobayashi, S.; Asakura, K.; Suga, H.; Sasaki, S.; Three-generation Study of Women on Diets and Health Study Group. Living status and frequency of eating out-of-home foods in relation to nutritional adequacy in 4017 Japanese female dietetic students aged 18–20 years: A multicenter cross-sectional study. *J. Epidemiol.* **2017**, *27*, 287–293. [[CrossRef](#)]
40. Laska, M.N.; Larson, N.I.; Neumark-Sztainer, D.; Story, M. Dietary patterns and home food availability during emerging adulthood: Do they differ by living situation? *Public Health Nutr.* **2010**, *13*, 222–228. [[CrossRef](#)] [[PubMed](#)]
41. Abraham, S.; Noriega, B.R.; Shin, J.Y. College students eating habits and knowledge of nutritional requirements. *J. Nutr. Health* **2018**, *2*, 13–17. [[CrossRef](#)]
42. MacLellan, D.L.; Lordly, D. The socialization of dietetic students: Influence of the preceptor role. *J. Allied Health* **2008**, *37*, e81–e92. [[CrossRef](#)]
43. Howes, E.M.; Harden, S.M.; Cox, H.K.; Hedrick, V.E. Communicating about weight in dietetics practice: Recommendations for reduction of weight bias and stigma. *J. Acad. Nutr. Diet.* **2021**, *121*, 1674. [[CrossRef](#)] [[PubMed](#)]
44. Vartanian, L.R.; Porter, A.M. Weight stigma and eating behavior: A review of the literature. *Appetite* **2016**, *102*, 3–14. [[CrossRef](#)]
45. Dosedel, E. Compensation and Benefits Survey 2021. *J. Acad. Nutr. Diet.* **2021**, *121*, 2314–2331. [[CrossRef](#)]
46. Dietetics Preceptor Training Program. Available online: <https://www.eatrightpro.org/acend/training-and-volunteer-opportunities/dietetics-preceptor-training-program> (accessed on 16 September 2022).
47. Lordly, D.; MacLellan, D. Acknowledging and adapting to dietetic students' changing needs. *Can. J. Diet. Pract. Res.* **2008**, *69*, 126–130. [[CrossRef](#)]
48. Taylor, E.L.; Hasseberg, C.M.; Anderson, M.A.; Knehans, A.W. Dietetic preceptor educational needs from the preceptor, student, and faculty perspectives. *J. Allied Health* **2010**, *39*, 287–292.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.