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Research Article

Determining Dietetics Students' Readiness to Practice: an Exploration of Student Perceptions

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Abstract

Background and Objective: The objectives of this study were to determine the readiness to practice of final-year dietetics students at UiTM, Selangor campus and to identify the factors that influence readiness to practice as a dietitian. **Materials and Methods:** Thirty students participated in this cross-sectional study. We administered a set of validated questionnaires to assess both readiness and factors that influence readiness. **Results:** Most of the students (63.3%) were ready to become dietitians. However, most of the students had a low level of readiness in the areas of communication with other professionals ($p < 0.05$) and charting ($p < 0.05$). This study also found that the scope of the profession has a great influence on students' readiness to practice ($p < 0.05$). In addition, the chance to help others was highlighted as the significant factor that motivates the students to continue in the field. **Conclusion:** The results of the current study illuminate the need for academics to consider and address the issues students face during the transition phase and the urgent need to revise and improve the curriculum.

Key words: Readiness to practice, dietitian, dietetics student, health sciences, allied health

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Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

A dietitian is a trained professional with the credible qualifications to implement the Nutrition Care Process to meet the needs of individuals with specific medical problems¹. A dietitian is also defined as a professional with the skills to provide dietary consultation concerning physical health for both healthy and unhealthy individuals. The challenges dietitians face in today's rapidly changing health care settings have highlighted the need for graduating students to be both competent and ready for practice.

Becoming a dietitian means making the transition from being a dietetics student to being a professional dietitian and a member of a multidisciplinary health team. This transition phase is exciting but it is also hampered by stress, challenges and anxieties. Concerns regarding the adequacy of one's knowledge, making mistakes, not being able to keep up and claiming one's role on the health care team as a professional dietitian can spark these difficult emotions^{2,3}.

During their study for the Bachelor of Dietetics (Honors) in Malaysia, students are placed in institutional food service management, community service and clinical internships before they practice as qualified dietitians. In the clinical internship, students are paired with either clinical instructors or local preceptors. Because this internship represents the students' first clinical experience, it may provoke a state of fear and anxiety, sometimes because of the inconsistencies between theory and practice⁴. This period also challenges lecturers to prepare students according to dietetics accreditation standards. To date, limited studies have examined the extent to which dietetics students are prepared to enter the workforce in Malaysia; the exceptions are a few studies involving nursing and medical students. A qualitative study by Illing *et al.*⁵ reported that junior doctors felt prepared in terms of communication, skills and teamwork. However, nursing students reported that communication, especially with physicians and clinical skills were their primary concerns⁶. Among health sciences graduates, communication also emerged as the critical work readiness factor⁷. This situation requires immediate action, especially from academics and clinical preceptors. This study was conducted to determine the readiness to practice of final-year dietetics students and to identify the factors that influence readiness to practice as a dietitian.

MATERIALS AND METHODS

Research design: This cross-sectional study examined final-year dietetics students at UiTM Puncak Alam Campus,

Malaysia. The study was conducted between May and July 2017. Both quantitative and qualitative methods were adopted. A validated questionnaire was administered to the dietetics students during their final semester of study to assess their readiness to practice. In-depth interviews with the students were also conducted to further examine their level of readiness. The final semester consists of a six-month clinical internship. All the registered final-year students ($n = 30$) from the 2017 session were included in this study.

Measurements/instruments: The Perceived Readiness for Dietetic Practice (PRDP) questionnaire by Farahat⁸ has been validated and was used in this research. The PRDP questionnaire consists of six subscales or themes (professional roles, communication, interaction, charting, referral and self-reflection) and comprises 32 items. The items are closed-ended questions answered using a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Furthermore, a series of questions were asked regarding factors likely to influence students' readiness to practice as professional dietitians, based on items adapted from Levett-Jones *et al.*⁹ and Silvian *et al.*¹⁰. Reliability of each questionnaire was assessed; the Cronbach's alpha was greater than 0.8 for both scales, indicating valid and reliable consistency.

Additionally, Each student's perceptions and readiness was explored via an in-depth interview. Each student was asked a total of five questions and their responses were recorded.

Data collection: Before the questionnaire was administered, oral and written consent was obtained from the respondents. Participation was voluntary. Permission to conduct this study and ethics approval were obtained from the human ethics committee of UiTM.

Data analysis: All data were entered into IBM SPSS version 21.0. The data were analyzed using descriptive statistics and an independent samples t-test. Descriptive statistics were used to examine the students' demographic characteristics. An independent samples t-test was used to compare independent variables such as the level of readiness to practice and the factors that influenced readiness to practice. The level of significance was set at $p < 0.05$. For the qualitative analysis, the recorded data were transcribed and analyzed according to themes.

RESULTS

Sociodemographic characteristics: Table 1 shows the participants' backgrounds. The mean age of the students was 23.37 ± 0.80 years. A total of 90% of the students had a GPA below 3.5; the mean GPA was 3.24 ± 0.20 . Most of the students (93.3%) had no experience working with patients before enrolling in the dietetics program.

Level of readiness to practice as a dietitian: The overall mean readiness-to-practice scores for all six subscales are shown in Table 2. The 'communicating with health professionals' subscale had the highest mean score, at 12.13 ± 2.30 ; the 'self-reflection' subscale had the lowest mean score, at 5.63 ± 1.19 .

We further determined the percentage of students with low and high levels of readiness based on each subscale (Table 3). We found a significant difference ($p < 0.05$) between the proportion of low and high levels of readiness related to communication with other professionals; however, most of the students had low scores on both subscales.

A one-way ANOVA and a chi-square test revealed no significant effect of GPA on the level of readiness ($p > 0.05$). Therefore, we can conclude that GPA had no effect on the students' readiness in the present study. Overall, 63.3%

($n = 19$) of the students reported being ready, 20% ($n = 6$) indicated that they were not ready and the remaining 16.7% ($n = 5$) were somewhat ready (Fig. 1).

Factors that influence the level of readiness to practice as a dietitian: The mean scores for all nine factors that influenced the students' readiness are shown in Table 4. The highest mean score among the factors that influenced the students'

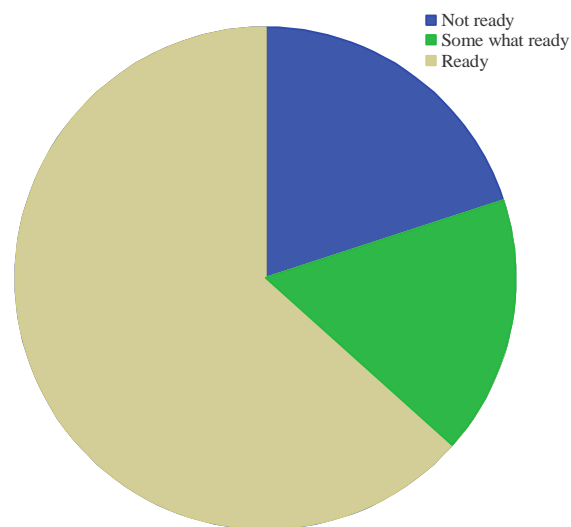


Fig.1: Summary of students' levels of readiness to practice

Table 1: Sociodemographic characteristics

Sociodemographic characteristics	n = 30	Percentage	Mean \pm SD
Age			23.37 ± 0.80
20-23 years	24	80.0	
24-27 years	6	20.0	
Gender			
Female	27	90.0	
Male	3	10.0	
Level of entry into the bachelor's program			
Pre-U/Foundation	7	23.3	
Diploma	4	13.3	
Matriculation	19	63.3	
Current GPA			3.24 ± 0.20
2.50-2.99	3	10.0	Min: 2.96
3.00-3.49	24	80.0	Max: 3.67
3.50-4.00	3	10.0	
Have you worked with patients before entering this academic program?			
Yes	2	6.7	
No	28	93.3	

Table 2: The students' mean readiness-to-practice scores

PRDP subscales	Possible range of scores	Mean score	Min-max score
Professional roles	0-18	11.37 ± 1.99	8-16
Communicating with health professionals	0-18	12.13 ± 2.30	8-16
Patient interaction	0-18	11.53 ± 2.41	8-16
Charting	0-18	12.03 ± 1.96	8-16
Referral	0-8	5.87 ± 1.07	4-8
Self-reflection	0-8	5.63 ± 1.19	3-8

Table 3: Perceived readiness for dietetic practice (PRDP) scores

PRDP subscales	No.	Percentage	p-value
Professional roles			0.362
Low level of readiness	12	40.0	
High level of readiness	18	60.0	
Communicating with health professionals			0.045*
Low level of readiness	21	70.0	
High level of readiness	9	30.0	
Patient Interaction			0.585
Low level of readiness	13	43.3	
High level of readiness	17	56.7	
Charting			0.001*
Low level of readiness	24	80.0	
High level of readiness	6	20.0	
Referral			0.200
Low level of readiness	11	36.7	
High level of readiness	19	63.3	
Self-reflection			0.099
Low level of readiness	10	33.3	
High level of readiness	20	66.7	

*p<0.05, analyzed using binomial test

Table 4: The mean scores for factors that influence readiness

Factors that influence readiness	Possible range of scores	Mean score	Min-max score
Perceptions of readiness	0-40	22.93±6.07	8-40
Emotional Issues	0-36	17.87±4.07	12-28
Bullying and belonging	0-12	6.83±2.41	3-12
Practicalities	0-4	1.50±1.1	0-4
Patient safety and making mistakes	0-4	1.47±0.97	0-4
Learning and skill acquisition	0-48	33.30±5.37	21-48
Scope of the profession	0-12	7.53±1.59	4-12

readiness was for 'learning and skill acquisition', at 33.33±5.37; the lowest mean score was for 'patient safety and making mistakes', at 1.47±0.97.

Further analysis showed that the scope of the profession had a significant effect (p<0.05) on students' readiness to practice (Table 5).

Interview responses: A total of 20 students (66.7%) reported that caring, compassion or a desire to help others improve their nutritional status and lifestyle was the reason they chose a career in dietetics.

A student shared that "I want to help people in terms of providing adequate nutritional status to improve their lifestyle". Another student said, "Nutrition is my passion and I want to improve the health status of the community."

Eight students (26.7%) reported that they did not have any option other than to pursue a career in dietetics. Two students (6.7%) focused on the perceived demand for dietitians.

Twelve students (40%) stated a desire to gain more knowledge from related evidence-based sources and skills to become more prepared to enter the dietetics profession. One student reported reading "a lot of current issues related to

Table 5: Scores for factors that influence readiness

PRDP subscales	No.	Percentage	p-value
Perceptions of readiness			0.856
Low level of influence	14	47	
High level of influence	16	53	
Emotional Issues			0.585
Low level of influence	13	43	
High level of influence	17	57	
Bullying and belonging			0.856
Low level of influence	14	47	
High level of influence	16	53	
Practicalities			0.585
Low level of influence	17	57	
High level of influence	13	43	
Patient safety and making mistakes			0.362
Low level of influence	18	60	
High level of influence	12	40	
Learning and skill acquisition			0.200
Low level of influence	11	37	
High level of influence	19	63	
Scope of the profession			0.043*
Low level of influence	9	30	
High level of influence	21	70	

*p<0.05, analyzed using binomial test

food and nutrition based on relevant research or data to gain knowledge". Another expressed a desire for "more communication practice and practice in certain areas of skill."

Seven students (23.3%) expressed a desire for more clinical experiences and other related forms of assessment, such as simulation experiences, during every semester of their study. Furthermore, six students (20%) expressed a desire for more patient interaction to expose them to a greater variety of cases. Three students (10%) expressed the need to build confidence to decrease their anxiety. Two students (6.7%) described a need for other internship placement opportunities in nonhospital settings.

Ten students (33.3%) described a potential loss of interest during their studies that could affect their readiness to be dietitians. One student stated, "We might feel lost and become uninterested in continuing the course and becoming a dietitian due to not being able to handle the pressure". Another student agreed that students might lose interest in the dietetics field during their studies.

Six students (20%) cited personal and emotional issues, such as shyness, inapproachability, difficulty building rapport, stress, lack of self-motivation and lack of confidence as factors. Six students (20%) also mentioned a lack of knowledge and skills as a contributing factor. Three students (10%) stated that fewer job opportunities made them uninterested in this course of study. Moreover, three students (10%) claimed that the lack of support from educators, clinical instructors and hospital staff made them lose interest in dietetics as a career. Two students (6.7%) revealed that dietetics was an unpopular course of study, which made them lose their passion for the field.

Regarding preparation for work as dietitians, twenty-three students (76.7%) noted that the food service, community, outpatient and clinical placements were the best aspects of the program. One student noted that "providing frequent clinical placement and giving students more opportunities to experience the work of a catering dietitian by outsourcing to an in-house hospital" was a positive aspect. Another student agreed that "the clinical placement at the end of the semester will prepare me for work as a dietitian".

Furthermore, five students (16.7%) focused on how learning theoretical approaches, such as medical nutrition therapy (MNT), would provide access to a variety of cases. Two students (6.7%) described how academic programs or events related to dietetics, such as nutrition talks, added value to this course of study.

Twelve students (40%) felt that longer clinical practice opportunities during each semester and updated guidelines would prepare them for work as dietitians. One student said, "Longer assignments for less stress and workloads during assignments." Another student said, "Provide more clinical placement with different ward practice and management."

Seven students (23.3%) expressed a desire to improve their knowledge and skills in such areas as communication, counseling, MNT management and evidence-based information. Additionally, three students (10%) requested more exposure to different disciplines and additional knowledge regarding the roles of other health care professionals. Two students (6.7%) expressed that instruction on theoretical learning approaches, such as MNT, should be accompanied by practical applications to allow the students to understand more about dietetics practice. One student (3.3%) described a need to establish a dietetics clinic and other assessments or programs related to dietetics, such as talks, forums, events, mock assessments and simulations.

DISCUSSION

Most of the students enrolled the dietetics courses at UiTM are female, which explains the high number of female participants in our study. In 2017 session, we found that the students had moderate GPAs on average; that is, their mean GPA was categorized as upper second class. Further analysis did not reveal any association between GPA category and the level of readiness. This finding is consistent with the findings of Bandura *et al.*¹¹, who reported that prior academic success is not an indicator of professional or performance success. In fact, the ability to adapt one's experience to current practice is more relevant.

Level of readiness to practice as a dietitian: This study revealed that most of the students were ready to practice in the areas of professional roles, patient interaction, referrals and self-reflection.

Professional role: Professional role readiness requires that students understand the role of a professional dietitian, specifically in a healthcare setting. Students should also be able to incorporate evidence-based practice (EBP) into theoretical and clinical learning, including clinical practice, during the course. EBP is a method of problem-solving in clinical decision making that integrates the best evidence from robust studies with clinicians' expertise and patients' values and preferences¹². EBP can enable students to increase their quality of care and improve patient safety in health care.

Patient interaction: In a health care setting, patient interaction can influence the patient's health status or state of well-being. Students can improve their patient care quality if they maximize interpersonal skills, which include

demonstrating concern for others, demonstrating insight into patient behaviors, maintaining open communication and respecting diversity¹³.

Referrals: The dietetics students were able to identify the roles of other health care professionals and provide referrals if needed. This ability arose from their exposure to various courses offered at the Health Sciences Faculty of UiTM. Thus, the dietetics students realized the importance of interprofessional interactions in health care.

Self-reflection: Most of the students reported having a goal of continual improvement. Self-reflection is the act of thinking about one's own feelings and behaviors and the reasons underlying them. Self-reflection enables students to develop their skills and consider their effectiveness rather than continuing to do the same things. McCarthy *et al.*¹⁴ share a similar finding regarding the ability of nurses to learn from clinical experiences and advance their practice through reflection.

In contrast to these areas of high readiness to practice, we noted significantly low ($p < 0.05$) readiness to practice in the areas of communicating with other professionals and charting.

Communicating with health professionals: Our students were afraid to communicate with other professionals; they considered themselves as students and not professionals in the field. This finding indicates a need for greater emphasis on the development of interprofessional learning and soft skills¹⁵ in the curriculum and to encourage dietetics professionals to actively communicate with other health professionals.

Charting: This study also revealed that our students were not proficient at charting. Therefore, instructors need to intensify attention to the Nutrition Care Process to empower students in this area.

Factors that influence the level of readiness to practice as a dietitian: This study revealed that no significant factor influenced student readiness except for the scope of the profession, which influenced most of the students (70%).

Scope of the profession: Most of the students expressed concerns about working beyond their current scope of practice. They lacked confidence, especially when they had not learned a given approach theoretically. However, most of them also felt relieved when peers and other professionals were aware of their job scope as dietitians.

Other factors: Emotional issues affecting the students are another concern for academics. A lack of preparedness can cause stress; therefore, supportive measures are needed to help students during the transition period¹⁶. A supportive clinical environment is the most important factor in maximizing the learning process and teaching¹⁷. All faculty, mentors and lecturers should support students during their practice¹⁸. A study by Lekhuleni *et al.*¹⁹ revealed that lecturers are charged with the responsibility of bridging the gap between the "world of academia" and service in clinical settings during student supervision. Hence, lecturers need to be reminded that students learn best in an atmosphere that offers support and guidance from mentors or clinical instructors, clinical staff, friends and other significant people. Within the nursing literature, Ross and Clifford²⁰ found that newly qualified nurses often feel unprepared for the role of staff nurses.

Practicalities of internship locations and facilities may also influence some students. Such factors include the financial strain of assignments to places that are far from their hometowns. According to Wray and McCall²¹, the financial burden associated with readiness to practice may affect students' emotional and physical well-being.

Exploration of perceptions and factors that influence readiness: The majority of the students reported that they loved the profession of dietetics because it gives them opportunities to care for and help others. The students were also attracted by the flexible schedules, the positive image of the dietitian and past experiences of providing care to others. Moreover, satisfaction with the program and the curriculum itself tended to be consistent with positive internship experiences²². However, the in-depth interviews suggest that academics need to revise the curriculum and highlight problem-based learning to improve the program²³. An introduction to interprofessional treatment is also crucial, as is the development of critical skills such as preparing students before practical exposure²⁴.

Strengths and limitations: A limitation is that we did not perform a pre- and post-study to determine the level of readiness before and after the students' internships. In addition, this study only involved one group of students (students in their final semester in 2017); therefore, the findings cannot be generalized to all registered students. However, this is the first study in Malaysia to report graduates' readiness to practice as dietitians and it provides insight into the need to review the current curriculum.

CONCLUSION

The final-year dietetics students are ready to become dietitians. Nevertheless, they encounter problems during this transition. The findings of this study suggest that factors that influence final-year dietetics students' readiness to practice should be considered and addressed to produce professionally mature dietitians. Improper preparation leads to emotional issues such as uncertainty, inadequacy and anxiety about practice that are likely to make students feel uncomfortable and inadequate in new work settings. A future study involving a larger sample size and necessary interventions is required.

SIGNIFICANCE STATEMENT

This study examines the level of readiness of our final-year dietetics students, including their readiness both to practice and to identify the factors that may influence their readiness. The study's findings may be beneficial for academics who seek an understanding of the issues that students encounter and strategies to facilitate the students' stressful transition to professional life. Additionally, the study will help researchers identify the critical areas of clinical graduate skills that many researchers have not been able to explore. Thus, a new theory on the employability of health science graduates may be posited.

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REFERENCES

1. Lacey, K. and E. Pritchett, 2003. Nutrition care process and model: ADA adopts road map to quality care and outcomes management. *J. Acad. Nutr. Dietet.*, 103: 1061-1072.
2. Carlson, S., W.J. Kotze and D. van Rooyen, 2005. Experiences of final year nursing students in their preparedness to become registered nurses. *Curationis*, 28: 65-37.
3. Mampunge, F., 2013. Experiences of final year nursing students at a public college of nursing in the eastern cape province regarding their preparedness to become registered nurses. M.CUR. Thesis, University of Fort Hare, South Africa.
4. Gibson, S., J. Dart, C. Bone and C. Palermo, 2015. Dietetic student preparedness and performance on clinical placements: Perspectives of clinical educators. *J. Allied Health*, 44: 101-107.
5. Illing, J.C., G.M. Morrow, C.R.R. nee Kergon, B.C. Burford and B.K. Baldauf *et al.*, 2013. Perceptions of UK medical graduates' preparedness for practice: A multi-centre qualitative study reflecting the importance of learning on the job. *BMC Med. Educ.*, Vol. 13, No. 1. 10.1186/1472-6920-13-34
6. Casey, K., R. Fink, C. Jaynes, L. Campbell, P. Cook and V. Wilson, 2011. Readiness for practice: The senior practicum experience. *J. Nurs. Educ.*, 50: 646-652.
7. Walker, A., M. Yong, L. Pang, C. Fullarton, B. Costa and A.T. Dunning, 2013. Work readiness of graduate health professionals. *Nurse Educ. Today*, 33: 116-122.
8. Farahat, E., 2014. Nutrition students' perception of osce & its effect on perceived readiness to clinical placement. Ph.D. Thesis, Loma Linda University, California.
9. Levett-Jones, T., V. Pitt, H. Courtney-Pratt, G. Harbrow and R. Rossiter, 2015. 2015. What are the primary concerns of nursing students as they prepare for and contemplate their first clinical placement experience? *Nurse Educ. Pract.*, 15: 304-309.
10. Silvian, S.P., K. Alahmari, F. Asiri, J.S. Tedla, I.A.A. Hameed and R. Reddy, 2015. Perceived Readiness to Practice (PRTP): A study among physiotherapy students in Abha, Saudi Arabia. *Mediterr. J. Social Sci.*, 6: 175-181.
11. Bandura, A., C. Barbaranelli, G.V. Caprara and C. Pastorelli, 2001. Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Dev.*, 72: 187-206.
12. Patelarou, A.E., A. Laliotis, H. Brokalaki, I. Petrakis, V. Dafermos and E. Koukia, 2016. Readiness for and predictors of evidence-based practice in Greek healthcare settings. *Applied Nurs. Res.*, 32: 275-280.
13. Dehghani, A., L. Mosalanejad and N. Dehghan-Nayeri, 2015. Factors affecting professional ethics in nursing practice in Iran: A qualitative study. *BMC Med. Ethics*, Vol. 16, No. 1. 10.1186/s12910-015-0048-2
14. McCarthy, G., N. Cornally and M. Courtney, 2011. Role, clinical competence and the professional development of practice nurses in Ireland. *Pract. Nurs.*, 22: 323-329.
15. Lazarsfeld-Jensen, A., 2010. Starting young: The challenge of developing graduates' road readiness. *J. Paramedic Pract.*, 2: 368-372.
16. O'Shea, M. and B. Kelly, 2007. The lived experiences of newly qualified nurses on clinical placement during the first six months following registration in the Republic of Ireland. *J. Clin. Nurs.*, 16: 1534-1542.
17. Guner, P., 2015. Preparedness of final-year Turkish nursing students for work as a professional nurse. *J. Clin. Nurs.*, 24: 844-854.

18. Gidman, J., A. McIntosh, K. Melling and D. Smith, 2011. Student perceptions of support in practice. *Nurse Educ. Pract.*, 11: 351-355.
19. Lekhuleni, E.M., D.M. van der Wal and V.J. Ehlers, 2004. Perceptions regarding the clinical accompaniment of student nurses in the Limpopo province. *Health SA. Gesondheid*, 9: 15-27.
20. Ross, H. and K. Clifford, 2002. Research as a catalyst for change: The transition from student to registered nurse. *J. Clin. Nurs.*, 11: 545-553.
21. Wray, N. and L. McCall, 2007. Plotting careers in aged care: Perspectives of medical, nursing, allied health students and new graduates. *Educ. Gerontol.*, 33: 939-954.
22. Wray, J., J. Aspland, H. Gibson, A. Stimpson and R. Watson, 2009. "A wealth of knowledge": A survey of the employment experiences of older nurses and midwives in the NHS. *Int. J. Nurs. Stud.*, 46: 977-985.
23. Ahmad, S.N.B. and N. Juhdi, 2010. Organic food: A study on demographic characteristics and factors influencing purchase intentions among consumers in Klang Valley, Malaysia. *Int. J. Bus. Manage.*, 5: 105-118.
24. Pender, F.T. and A.E. de Looy, 2004. The testing of clinical skills in dietetic students prior to entering clinical placement. *J. Hum. Nutr. Dietet.*, 17: 17-24.