Supplementary File 2: Data Extraction Table

No.	Author/Year/ Country	Study Aim	Participants	Study Design	Intervention	Outcome Measures	Results	Study Limitations & Quality Appraisal (MMAT)
1 + 2	Adefila et al. (2016), United Kingdom + Ball et al. (2015), United Kingdom *(Published conference paper reporting preliminary findings)*	The pilot study aimed to evaluate the effects of a developed VR resource on participants' understanding of dementia; attitudes towards the care treatment of people living with dementia; and opinions of the behaviours and attitudes of people living with dementia.	Students studying health and social care degrees (n=55): • Adult and mental health nurses • Clinical psychologists • Occupational therapists • Paramedics • Physiotherapists • Social workers	Mixed method: • One group pre/post tests • *"Think Aloud"* technique	**myShoes Project:** • Development of a resource that would augment a virtual environment and enhance users' understanding of what living with dementia might be like. • Focused on facilitating user's affective empathy via the engagement of sensorimotor processing that are linked to cognitive and affective involvement in addition to the physical conditions (i.e., visual, audio and movement). **Equipment/Software:** • Oculus Rift (i.e., stereoscopic headset with touch controllers). • Unity 3D software engine. **VR Immersive Experience:** • User immerses and navigates the avatar of an older person. • Virtual environment is manipulated to misdirect and confuse user to complete simple tasks (e.g., clearing dining table). • User attempts open-ended tasks to experience the emotions and cognitive function impairments people living with dementia encounter.	**Standardised Self-Reporting Instruments Completed Prior to VR Experience:** • Interpersonal Reactivity Index (IRI) : Assesses perspectives of and empathetic concerns for others. • Inventory of Interpersonal problems-32 : Identifies interpersonal relationship issues that can influence VR experience. • Generalised Anxiety Disorder-7 : Assesses anxiety issues that can inhibit engagement of emotionally challenging tasks, acquire and assimilate new information as well as ability to empathise. **Pre/Post Tests:** Same questionnaire administered before and after VR experience to capture self-perceived confidence, competence and compassion on a non-numeric visual analogue scale plus questions on: ○ previous understanding of dementia (pre-test); and ○ the Impact of VR experience on understanding of dementia and how it can be improved (post-test).	Potentially a useful training tool that facilitates person-centred dementia care where consideration is not only placed on personal skills or competency in treatment but also the feelings, dignity and well-being of people living with dementia in order to appropriately adjust care approach. **Improved Confidence:** • Pre (*M*=4.35; *SD*=2.50) • Post (*M*=5.75; *SD*=2.61) • *p*<.001; *d*=0.90 **Improved Competence:** • Pre (*M*=4.36; *SD*=2.59) • Post (*M*=5.84; *SD*=2.50) • *p*<.001; *d*=0.93 **Improved Compassion (Empathy - IRI):** • Pre (*M*=8.48; *SD*=1.73) • Post (*M*=9.10; *SD*=1.65) • *p*<.001; *d*=0.51	• Small sample size. • Simulation sickness reported by some users. • Unclear reporting of methodology including sampling strategy, nonresponse bias and details of outcome measurement used. • Demographics participants (e.g., age and gender) were not reported.
3	Beville (2002), United States of America	To assess caregivers' experience following sensitivity training using the Virtual Dementia Tour.	Eldercare Workers (n=146): • Nurses • Aides • Social workers • Activity directors • Administrators • Directors of Nursing	Quasi-experimental (one group pre/post-tests).	*Virtual Dementia Tour (VDT).* **Equipment:** *Participants 'garbed':* • Popcorn kernels in shoes/gloves *(simulate poor circulation, neuropathy and/or arthritis + loss of sensory and motor skills).* • Gloves with tape *(simulate loss of mobility and motor skills).* • Goggles darkened with yellow cellophane, smeared with Vaseline and a centered black dot *(simulate variety of visual impairments).* • Headphones and cassette players *(simulate variety of hearing impairments).*	**Developed Survey (Pre/Post):** Q1) Do you feel you understand the emotional needs for our elders? Q2) From a physical standpoint, do you feel capable of carrying out simple tasks? Q3) What is your current state of relaxation? Q4) Is it necessary to sensitise yourself to elders to provide good care? Q5) How easy is it for a dementia resident to get through the day? Q6) *(Pre-Test)* How often do you experience inappropriate behaviour? Q6) *(Post-Test)* If you had dementia, how justified would you feel about exhibiting inappropriate behaviour?	Participants' empathy towards patients living with dementia increased along with awareness that their high expectations of these patients are unrealistic and need to change. An increase in understanding and/or awareness of residents with dementia: Q1) emotional needs. Q2) incapability to perform simple everyday tasks. Q3) feelings of anxiousness. Q5) functional difficulties and challenges to get through the day.	• Unclear reporting of project aim (*implied*) and methodology including study design, sampling strategy, and nonresponse bias. • Demographics participants (e.g., age and gender) were not reported. • Face validity/internal consistency of VDT survey was not clearly reported.

#	Author	Aim	Participants	Design	Tool	Data collection	Findings	Other
						Environment: Imitation of a residential room with bed, desk, closet, nightstand and bathroom plus a range of objects to create confusion. • Transparency image of an elder person on bathroom mirror *(simulate loss of recognition)*. • Camera flashed every three minutes *(simulate privacy loss)*. • Dimly lit. **Experience:** • To complete five simple everyday tasks (i.e., find and put on a sweater; write a three-sentence note and place it in an envelope for family; towel folding, teeth brushing; and rearrangement of clothing in closet by colours). • Participants were allowed 10 minutes per task but were only informed that it was a *'timed exercise'*.	Q7) *(Pre-Test)* Assuming you have exhibited inappropriate behaviour at some point, how justified did you feel in that behaviour? Q7) *(Post-Test)* If you suffered from dementia, how justified would you feel about exhibiting inappropriate behaviour? Q8) In your opinion, do dementia residents generally get the care they need? **Observation Form:** Standardised form: • Interactions • Verbal and nonverbal communications • Types of tasks completed	Q6) exhibited 'inappropriate behaviours' may not be inappropriate after all. Q7) unjustified 'inappropriate behaviours' may not be unjustified after all. Q8) do not always receive the care they need. Participants also believed there is a need to be sensitised to elders in order to provide good care (Q4). Subvocalisation occurred in participants as a coping strategy, and they displayed inappropriate behaviours during the VDT experience.	

4	Campbell et al. (2021), United States of America	To evaluate the impact of a simulated virtual reality dementia experience on future nurses' perceptions of awareness, knowledge and sensitivity of Alzheimer's Disease (AD).	Undergraduate nursing students (n=70).	Quasi-experimental (one group pre/post-tests).	Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	**Survey (Pre/Post):**
						• Dementia Attitudes Scale (DAS) : Assessed attitudes towards dementia.
						• Knowledge About Memory Loss and Care (KHML-C) : Assessed knowledge of caregivers patients' memory loss in early stages of AD.
						• Five questions from Beville et al. (2002) VDT survey used – Q3, Q5, Q8 plus two others (not reported).
						
						Students' Written Reflections:
						• How VDT affected them.
						• Memorable and impactful aspect(s) of VDT.
						• Difference in approach to care after VDT.
							Virtual reality dementia experience improved perceptions of awareness, knowledge and sensitivity of AD.
							
							Improved Attitudes (DAS):
							• Significantly improved DAS total scores ($p<.001$).
							
							Knowledge (KHML-C):
							• No significant change ($p>.05$).
							
							VDT Survey:
							• An increase in understanding and/or awareness of residents with dementia:
							  o feelings of anxiousness;
							  o functional difficulties and challenges to get through the day; and
							  o do not always receive the care they need.
							
							Participants reflected on:
							• The value of the VDT experience in enhancing their knowledge and appreciation of the care required by people with AD.
							• The need for sensitivity and empathy when caring for people with AD.
							• The need to change their care approach for people with AD.
								• Demographics participants (e.g., age and gender) were not reported.

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							• Carers' stress and the need to support families of people with AD.	

5	Donahoe et al. (2014), United States of America	To increase students' knowledge and empathy towards older adults with dementia using the Virtual Dementia Tour.	Students (n=208): • Studying social work or a related human service profession • Females (n=185) and males (n=23) • Age range: 18-63	Mixed Method: • Non-experimental, non-equivalent groups with pre/post tests • Reflection	Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	**Survey (Pre/Post):** • Beville et al. (2002) VDT survey – Q1 to Q5 plus Q8. • Inclusion of two qualitative questions regarding how students were affected and what they may do differently due to their VDT experience.
						
						Reflective Write-up: • Awareness and feelings of aging and dementia. • Empathy towards older people. • Effects of VDT experience on both their professional and personal life. • Impact on future practice and interactions with clients.
							The learning tool was effective in increasing participants' empathy towards people with dementia.
							
							VDT Survey: • Significant change (p <.0001) from pre (*M*=17.14; *SD*=3.07) to post (*M*=21.20; *SD*=3.69) with an increase in understanding and/or awareness of residents with dementia:
							  ○ emotional needs;
							  ○ incapability to perform simple everyday tasks;
							  ○ feelings of anxiousness;
							  ○ functional difficulties and challenges to get through the day; and
							  ○ do not always receive the care they need.
							
							Furthermore, participants believed there is a need to be sensitised to elders in order to provide good care. Upon reflection, they also indicated that the VDT experience: • Had positively affected them personally and professionally. • Provided them an insight into the experience of living with dementia. • Increased their awareness of aging-related health challenges (e.g., vision and hearing problems). • Increased their confidence and interest to work with people living with dementia.
								• Face validity/internal consistency of VDT survey was not clearly reported.

6	Dyer et al. (2018), Australia	To increase students' empathy towards older adults via a virtual reality experience.	Students studying (n = > 600): • Medicine • Physical Therapy • Physician Assistant	Quasi-experimental (pre/post-tests).	***Virtual Reality Educational Project.***
					
					Equipment: • Alienware laptop or desktop stations. • Embodied Labs program. • Oculus Rift headset and sensor. • Leap Motion hand-tracking device.
					
					Experience: • Age-related conditions: macular degeneration and high-frequency hearing loss. • Alzheimer's disease and end-of-life conversations.
						Assessment: • Pre/post assessment via REDCap platform.	• Increased understanding of health problems associated with aging. • Increased empathy of older people experiencing vision and hearing loss as well as Alzheimer's disease.	A brief report with limited information on: • The appropriateness of collected data to answer research question. • Methodology:
								  ○ participants' recruitment;
								  ○ procedures;
								  ○ appropriateness measurement (i.e., that is the nature and validity of developed assessment tool); and

								o data analysis (i.e., the statistical analysis conducted). • Demographics participants (e.g., age and gender) were not reported. • Discussion of results (e.g., non-response bias, limitations).
7	Gilmartin-Thomas et al. (2018), Australia	To quantitatively evaluate the impact of a virtual dementia experience on medical and pharmacy students' knowledge and attitudes toward people with dementia.	Students studying (n=278): • Medicine and Surgery (n=64) • Pharmacy (n=214) • Females (n=184) and males (n=94) • Mean age: 22.5	Non-randomised controlled.	**Intervention & Control Group:** • Standard curriculum **Intervention Only Group:** • ***Alzheimer's Australia Victoria Virtual Dementia Experience (VDE)***. **Equipment:** • An immersive environment with a 10x2m screen that provides a multisensory and virtual simulation of light, sound, colour, and visual content. **Experience:** • Cognitive and perceptual difficulties encountered by people living with dementia. • Facilitator guided personal reflection and group discussion.	**Survey (Pre/Post):** • Dementia Attitudes Scale (DAS) : Assessed attitudes towards dementia.	Participants' knowledge and attitudes towards people with dementia was positively impacted. **Improved Attitudes (DAS):** • Significantly improved DAS total scores ($p<.05$) and subdomains of comfort and knowledge ($p<.01$) for the intervention group when compared to the control group across medical students, pharmacy students and students combined. Table below: Difference in means; Int = Intervention; Ctrl = Control; C = Comfort; K = Knowledge; O = Overall	• Students were not randomly allocated to groups. • Students without follow-up (post) data were excluded from the final analysis.

8	Gilmartin-Thomas et al. (2020), Australia	To qualitatively evaluate the impact of a virtual dementia experience on medical and pharmacy students' self-reported knowledge and attitudes toward people with dementia.	Students studying (n=53):
			• Medicine and Surgery (n=29)
			• Pharmacy (n=24)
			• Female (n=35), male (n=17), and gender not recorded (n=1)
				Qualitative study Focus group interviews (n=10).	Gilmartin-Thomas et al. (2018) - ***Virtual Dementia Experience (VDE)***.	**Individual Interviews:**
						• Thematic analysis of semi-structured, open-ended questions focusing on:
						  o perceived usefulness of VDE;
						  o potential improvements to VDE; and
						  o VDE's ability to inform understanding of dementia-friendly environments.
							• Improved self-reported knowledge and attitudes towards people living with dementia.
							• VDE is useful and impactful, and could be included in hospital, medical, and pharmacy-specific scenarios and opportunities for role play to enhance learning.
							• Acknowledge the need to include dementia-friendly communication techniques in future practice.
							• Recognise the need to incorporate dementia-friendly characteristics in workplace (i.e., medical environments and pharmacy).
								• Met all criteria.

9	Han & Brown (2019), United States of America	To explore experiences of caregivers of people with dementia who participated in a	Caregivers (n=14): • Formal (n = 10) • Informal (n = 4) • Females (n=12) and males (n=2)	Qualitative Individual interviews.	***Dementia Live (DL) Program*** comprising of 3 sessions lasting a total of 30-40 minutes (*see below*) – www.ageucate.com	**Individual Interviews:** • Thematic analysis, using NVivo 11 software, of semi-structured, open-ended questions focusing on:	• An eye-opening opportunity to be in the shoes of people with dementia (i.e., sharing their feelings and experiences) and the realisation of	• Met all criteria.

DAS table (study 7):

	Int	Ctrl
Medical - C	9.9	0.5
Medical - K	4.6	-1.0
Medical - O	14.4	-0.1
Pharmacy - C	11.3	1.8
Pharmacy - K	6.1	0.1
Pharmacy - O	17.8	2.1
Combined - C	10.6	1.7
Combined - K	5.4	-0.1
Combined - O	16.1	1.8

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					o experience of participating in the DL program; and o perceived impact of DL program on their perspectives on and caring for people with dementia.	how living with dementia was much harder than anticipated. • Perceived benefits from increased empathy and sympathy through an understanding of the emotions and behaviours of people with dementia; as well as promoting the use of new helpful care strategies. • Caregivers should have the DL experience and it is a better training method than others.	
				Equipment: • Headphones with MP3 Player (*to distract attention and hearing*). • Eyewear (*to limit peripheral vision*). • Gloves (*to weaken sense of touch and fine motor skills*). • Experience room. **Experience:** • Preparation session (~10 minutes) • Experience session (~7 minutes): to complete 5 daily tasks that are read out. • Empowerment session (~10-20 minutes) to discuss: o participants performance, behaviours and reactions (feelings); o reasoning of people with dementia's behaviours; and o possible changes to care approaches with a trained DL program coach.			
10	Han et al. (2019), Korea	To explore experiences of caregivers of people with dementia who participated in a Korean dementia simulation program.	Caregivers (n=28): • Formal (n = 12) • Informal (n = 16) • Females (n=25) and males (n=3) • Mean age: 54.1	Qualitative Phenomenological study via individual interviews.	*Modified version of the **Dementia Live (DL)** program* www.ageucate.com – translated to Korean with daily tasks adjusted to suit the Korean cultural context.	**Individual Interviews:** • Thematic analysis, using ATLAS.ti 8 software, of semi-structured, open-ended questions focusing on: o experience of participating in the DL program; and o perceived impact of DL program on their perspectives and carding for people with dementia.	• Improved empathy through an understanding of how people with dementia perceived the world, as well as their emotional daily struggles and behaviours in daily lives. • Positively impacted care strategies through using or promoting the use of new helpful strategies; and the realisation of the emotional and social benefits on self and people with dementia through changing care strategies. • Increased awareness of the need to provide people with dementia more attention and affection. • Increased awareness of the need to educate people aging and dementia related health changes.	• Met all criteria.
11	Kimzey et al. (2019), United States of America	To ascertain the effects of a dementia simulation on empathy, dementia knowledge and self-confidence for dementia care of nursing students.	Undergraduate nursing students enrolled in a Behavioural Health Course (n=108): • Female (n=101) and Male (n=7) • Age range: 17-21 (n=84); >21 (n=24)	Quasi-experimental (2 groups pre/post-tests): • Intervention • Control	**Intervention & Control Group:** • Dementia-related online modules: o Definitions, background, anatomy and physiology; and o Brief videos on dementia progression and perspectives of a people with dementia and a caregiver • Dementia-related lectures: o Incidence/prevalence; o Delirium, depression and dementia; and o Common communication challenges.	**Survey (Pre/Post):** • Dementia Attitudes Scale (DAS) : Assessed attitudes towards dementia. • Interpersonal Reactivity Index (IRI) : Assesses perspectives of and empathetic concerns for others. • Dementia Knowledge Assessment Tool Version 2 (DKAT2) : Assesses knowledge of dementia and dementia care. • Confidence in Dementia Scale (CODE) : Assesses overall confidence in working with people with dementia.	81 out of 108 matched paired pre/post surveys **Improved Attitudes (DAS):** • Significant improvement over time from pre to post (p=.049). • No significant difference between groups (p>.05). **Empathy (IRI):** • No significant difference between groups (p>.05) except for a significant improvement over time from pre to	• Students were not randomly allocated to groups. • Students without follow-up (post) data were excluded from the final analysis – low post intervention response rate (reasons unknown) - drop from 108 (pre) to 81 (post) participants.

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							Results	
						○ Behaviours and associated factors **Intervention Only Group:** ○ ***Dementia Live (DL)* program** – www.ageucate.com		post on the subscale of *Perspective Taking* (p=.007): **Knowledge (DKAT2):** • Significant improvement over time from pre to post (*p*<.001). • No significant difference between groups (*p*>.05). **Confidence (CODE):** • Significant improvement over time from pre to post (*p*<.001). • No significant difference between groups (*p*>.05).	
12	Kimzey et al. (2020), United States of America	To ascertain the effects of a dementia simulation on empathy and dementia knowledge of nursing students.	Undergraduate nursing students enrolled in a Behavioural Health Course (n=55): • Female (n=46) and Male (n=9) • Age range: 17-25	Mixed method: • One group pre/post tests • Focus group interviews (n=8)	**Lesson:** • Dementia-related lecture covering: ○ incidence/prevalence; ○ delirium, depression and dementia; and ○ common communication challenges. **Simulation:** • ***Dementia Live (DL)* program** – www.ageucate.com	**Survey (Pre/Post):** • Dementia Knowledge Assessment Tool Version 2 (DKAT2) : Assesses knowledge of dementia and dementia care. • Comprehensive State Empathy Scale (CSES) : Assesses empathy. **Focus Group Interviews:** • Thematic analysis of semi-structured, open-ended questions focusing on thoughts, perspectives, feelings, motivation to help following participation in the DL program.	Significant improvement on participants' empathy. **Improved Empathy (CSES):** • Pre (*M*=94.67; *SD*=20.22) • Post (*M*=112.75; *SD*=21.08) • Significance (*p*<.001) **Knowledge (DKAT2):** • No significant change (*p*=.369) **Interviews:** • <u>Cognitive empathy</u>: Dementia related experience of losses in cognitive, independence, purpose, socialisation and sensory perception and the impact on daily life as well as feelings of isolation and stigmatisation were recognised. • <u>Distress</u>: Expressed feelings of distress (e.g., sadness, anxiety and frustration) associated with living with dementia, as well as fear of having dementia in the future (personally or a family member). • <u>Empathic Imagination</u>: Appreciated and can imagine how they, personally, or others living with dementia would feel/behave. • <u>Helping Motivation</u>: Increased inclination to engage with people with dementia by spending more time with them, listening to, as well as being understanding, assuring and patient etc.	• Small sample size.
13	Lorio et al. (2017), United States of America	To educate physical therapy students on the challenges associated with dementia and to increase knowledge and confidence	Physical Therapy students (n=31): • Females (n=17) and males (n=14) • Age range: 22-29 (n=25); 30-39 (n=3); >40 (n=1)	Quasi-experimental (one group pre/post-tests).	• 12-hour multimodal experimental learning module comprising of: ○ dementia-related lectures; ○ Beville et al. (2002) - ***Virtual Dementia Tour (VDT)*;**	**Survey (Pre/Post):** • Confidence in Dementia Scale (CODE) : Assesses overall confidence in working with people with dementia. • Knowledge in Dementia Scale (KIDS) : Assesses knowledge of dementia.	Overall, the experimental learning improves participants' understanding of the challenges related to the treatment of patients with dementia and their confidence in working with them.	• Small sample size. • Face validity/internal consistency of VDT survey was not clearly reported. • Appropriateness of measurement tool (i.e.,

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		when treating these patients.			○ clinical work with patients with dementia at a memory care centre; and ○ interactive book club discussion.	• Beville et al. (2002) VDT survey plus two questions on: ○ confidence to treat patient with dementia; and ○ understanding that aged-related changes can further impact communication and comprehension in patients with dementia.	**Improved Confidence (CODE):** • Pre (M=30.63; SD=5.18) • Post (M=36.97; SD=4.90) • p<.001 **Knowledge (KIDS):** • No significant change (p=.604) **VDT Survey:** • Increased awareness of the need to be sensitised to older people to provide good care (p<.025). • Increased awareness of how difficult it is for patients with dementia to get through the day (p<.004). • Increased understanding on why people with dementia exhibit inappropriate behaviours (p<.001).	KIDS may not be sensitive to assess changes in knowledge.
14	Mastel-Smith et al. (2020), United States of America	To promote students' knowledge, attitudes, empathy and self-confidence for dementia care via the Dementia Care Bootcamp.	Undergraduate students (n=43): • Nursing (n=19) • Occupational Therapy Assistant (n=13) • Pharmacy (n=3) • Psychology (n=8) • Female (n=39) and Male (n=4) Age range: 17-21 (n=15); 22-25 (n=18); 26-30 (n=4); 31-40 (n=3); and 41-50 (n=3)	Embedded mixed method: • Quasi-experimental (one group pre/post-tests) • Focus group interviews (n=3)	**Dementia Boot Camp (2 x 8-hour sessions) consisting of:** • A Dementia care expert trainer. • Videos about dementia care. • Case-specific vignettes. • Role-plays. • Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	**Survey (Pre/Post & Follow-up @ 3 months):** • Dementia Knowledge Assessment Tool Version 2 (DKAT2) : Assesses knowledge of dementia and dementia care. • Dementia Attitudes Scale (DAS) : Assessed attitudes towards dementia. • Interpersonal Reactivity Index (IRI) : Assesses perspectives of and empathetic concerns for others. • Confidence in Dementia Scale (CODE) : Assesses overall confidence in working with people with dementia. **Focus Group Interviews:** • Colaizzi's seven step approach to qualitative data analysis was used to examine participants' experience of: ○ what went well; ○ what needed improvements; ○ activities where new information are learnt from; ○ activities that facilitated learning; ○ barriers to learning; and suggestions for future program.	Significant results for: **Pre/Post** **Improved Knowledge (DKAT):** • Pre (M=14.63; SD=2.44) • Post (M=17.23; SD=1.61) • Significance (p<.001) **Improved Attitudes (DAS):** • Pre (M=5.38; SD=0.57) • Post (M=5.81; SD=0.54) • Significance (p<.001) **Improved Confidence (CODE):** • Pre (M=3.18; SD=0.67) • Post (M=4.03; SD=0.58) • Significance (p<.001) **Improved Perspective Taking (IRI Sub-Scale):** • Pre (M=3.26; SD=0.43) • Post (M=3.88; SD=0.69) • Significance (p<.05) **Follow-up @ 3 Months** **Improved Knowledge (DKAT):** • Pre (M=14.58; SD=2.55) • Post (M=16.92; SD=1.78) • Significance (p<.001) **Improved Attitudes (DAS):** • Pre (M=5.36; SD=0.57) • Post (M=5.01; SD=0.31) • Significance (p<.001) **Improved Confidence (CODE):**	• Small sample size. • Students without post or follow-up data were excluded from the final analysis.

						• Pre (*M*=3.13; *SD*=0.68) • Post (*M*=3.83; *SD*=0.67) • Significance (*p*<.001) **Improved Fantasy (IRI Sub-Scale):** • Pre (*M*=3.18; *SD*=0.56) • Post (*M*=3.62; *SD*=1.09) • Significance (*p*=.003) **Improved Empathy (IRI Sub-Scale):** • Pre (*M*=3.13; *SD*=0.33) • Post (*M*=4.19; *SD*=0.69) • Significance (*p*<.001) **Improved Personal Distress (IRI Sub-Scale):** • Pre (*M*=2.69; *SD*=0.43) • Post (*M*=2.29; *SD*=0.61) • Significance (*p*<.001) **Improved Perspective Taking (IRI Sub-Scale):** • Pre (*M*=3.29; *SD*=0.42) • Post (*M*=3.88; *SD*=0.69) • Significance (*p*<.001) Qualitative findings supported quantitative results with perceived improvements in empathy, attitudes towards dementia, as well as knowledge and confidence for dementia care.	

15	Mastel-Smith et al. (2019), United States of America	To promote students' knowledge, attitudes, empathy and self-confidence for dementia care via the Dementia Care Bootcamp and clinical experience.	Undergraduate nursing students (n=100):
			• Female (n=83) and Male (n=17)
				Quasi-experimental (2 groups pre/post-tests).	**Group 1:** Mastel-Smith et al. (2020) – *Dementia Boot Camp* **(10-hour).**
					
					Group 2: Dementia Boot Camp + Clinical Experience (1-day).
						Survey (Pre/Post):
						• Dementia Knowledge Assessment Tool Version 2 (DKAT2) : Assesses knowledge of dementia and dementia care.
						• Dementia Attitudes Scale (DAS) : Assessed attitudes towards dementia.
						• Interpersonal Reactivity Index (IRI) : Assesses perspectives of and empathetic concerns for others.
						• Confidence in Dementia Scale (CODE) : Assesses overall confidence in working with people with dementia.
							Significant results for <u>all</u> participants on:
							
							Improved Knowledge (DKAT):
							• Pre (*EMMs*=14.58; *SE*=0.28)
							• Post (*EMMs*=16.25; *SE*=0.28)
							• Significance (*p*<.001)
							
							Improved Attitudes (DAS):
							• Pre (*EMMs*=106.22; *SE*=1.46)
							• Post (*EMMs*=112.07; *SE*=1.69)
							• Significance (*p*=.002)
							
							Improved Confidence (CODE):
							• Pre (*EMMs*=30.51; *SE*=0.76)
							• Post (*EMMs*=32.56; *SE*=0.67)
							• Significance (*p*=.017)
							
							Overall:
							• No significant difference (*p*>.05):
							  o In all participants' empathy; and
							  o between groups on all outcome measures.
								• Students were not randomly allocated to groups.
								• Demographics participants (e.g., age) were not reported.

							* EMMs = Estimated Marginal Means	
16	Meyer et al. (2020), United States of America	To examine how a simulation training program can prepare healthcare trainees to treat people with dementia.	Participants (n=28): • Healthcare students (n=5) • Teaching faculty members (n=3) • Nursing students (n=20)	Qualitative: • Individual interviews (n=8) • Reflection papers (n=20)	Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	**Individual Interviews:** • Thematic analysis of semi-structured questions focusing on VDT experiences and how they would deliver care to people with dementia. **Reflection Papers:** • Visceral experiences and reactions during VDT. • How they would for people with dementia following the VDT experience.	• Gaps in traditional teaching approaches are addressed by simulated learning. • Gain an insight into the lived experience of living with dementia and co-morbid conditions (empathy). • Application of simulation into care practice via: o having patience; o assessing and anticipating care needs; o educating others (e.g., family members of people with dementia); and o creating a culture of care.	• Met all criteria.
17	Peng et al. (2020), China	To evaluate the effect of Virtual Dementia Tour on nursing students' empathy and future dementia care.	Second year undergraduate nursing students (n=45): • Female (n=42) and Male (n=3) • Mean age: 18.96	Mixed method: • One group pre/post tests • Individual interviews	• Movie 'Still Alice' • Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	**Survey (Pre/Post):** • Jefferson Scale of Empathy-Health Profession Students (JSE-HPS) : Assess empathy in the context of health professions education. **Individual Interviews:** • Semi-structured with questions focusing on VDT experiences, benefits of VDT, impact of VDT experience on future practice and practical recommendations – analysed via NVivo 11 software.	Significant improvement on participants' empathy. **Improved Empathy (JSE-HPS):** • Pre (M=106.69; SD=9.49) • Post (M=115.51; SD=10.16) • Significance (p<.01) **Interviews:** • Program is effective but VDT more so than the movie. • Satisfied and would recommend the program to others. • Experienced challenges to tasks completion and feelings of frustration, helplessness and anger. • Increased awareness to help and be patient with people with dementia, as well as avoid asking them to do multiple task and provide some time to do tasks.	• Small sample size. • Limited integration of quantitative results and qualitative findings.
18	Slater et al. (2019), Ireland	To explore the impact of an interactive training experience on moral, emotive, behavioural, and cognitive elements of empathy.	Participants (n=18): • Frontline Staff (i.e., Registered Nurses and Healthcare Assistants) (n=5) • Carers and Befrienders (n=4) • Senior Management (i.e., Service Managers and Director of Nursing) (n=6) • Allied Health Professionals (n=1) • Medical/Psychiatry Staff (n=1) • Others (i.e., Educationalists and	Qualitative Individual face-to-face or telephone interviews.	Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	**Individual Interviews:** • Thematic analysis of interview questions focusing on the four elements of empathy (i.e., emotive, moral, cognitive, and behavioural) and guided by three broad aspects: 1) VDT experience; 2) benefits of VDT; and 3) impact of VDT on practice.	Participants perceived VDT to be useful and provided an emotional insight into what it is like to be living with dementia that enables reflection on a cognitive, moral and behavioural level, leading to empathy. **Emotive Component:** • Induced feelings of frustrating when performing daily activities and fear and concerns of developing dementia. **Moral Component:** • Self-reflection led to guilt and shame for how care had been previously provided to people with dementia.	• Met all criteria.

							Cognitive Component: Awareness of dementia manifestations other than memory impairments. • Reasoning of dementia-related behavioural and psychological responses such as wandering, aggression and agitation. Behavioural Component: • Improved overall quality of care delivery. • Enhanced communication and confidence. • Less judgement in managing challenging behaviours. • Reduced fear, stress, and frustration to inform future care options.	
			Dementia Service Managers) (n=1) • Female (n=15) and Male (n=3)					
19	Werner et al. (2014), United States of America	To explore the effects of an experiential learning technique to improve social work students' empathy toward and understanding of older adults with dementia.	Social Work students (n=95) who are studying either one of the following subjects: • Introduction to Social Work • Human Behaviour and Social Environment • Females (n=85) and males (n=10) • Age range: 19-22	Mixed method: • One group pre/post tests • Qualitative open-ended question	Beville et al. (2002) - *Virtual Dementia Tour (VDT)*.	Survey (Pre/Post): • Modified version of Beville et al. (2002) VDT survey plus two open-ended questions seeking reflection on VDT experience.	Improvements on participants' empathy and understanding of adults with dementia were found. Feelings of vulnerability and confusion occurred during VDT. VDT Survey: • Significant change (p <.001) from pre (*M*=12.98; *SD*=1.77) to post (*M*=15.49; *SD*=2.05) where majority of participants has an increase in understanding and empathy (n=58, 62.3%). Potential behaviour changes resulting from VDT: • Increased patience and understanding. • Increased need for more training and education. • Importance of sharing their VDT experience with others.	• Nonresponse bias; the number of participants who did not complete the post VDT survey was not reported. • Face validity/internal consistency of VDT survey was not clearly reported.