دانشگاه علوم پزشکی و خدمات بهداشتی، درمانی ایران

Artificial Intelligence in Psycho-oncology and digital health

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بسم الله الرحمن الرحیم

Medical progress, increase in life expectancy

Medical progress, the improvement of general living conditions, and an increase in life expectancy have led to an increase in the general prevalence of oncologic disease.

More and more patients survive cancer or live with the disease for long periods of time.

Psycho-oncology

While lots of work perform to fight cancer, improving patients' quality of life is also very important.

Psycho-oncology has risen as a relatively new interdisciplinary field with the aim of providing support for patients confronting numerous challenges throughout the different stages of the disease.

Quality of life

Cancer, and also its medical treatments, leads to a broad variety of physical and psychosocial problems.

These range from physical pain, fatigue, and loss of autonomous life to anxiety, depression, and strain on personal relationships and have a deep impact on quality of life.

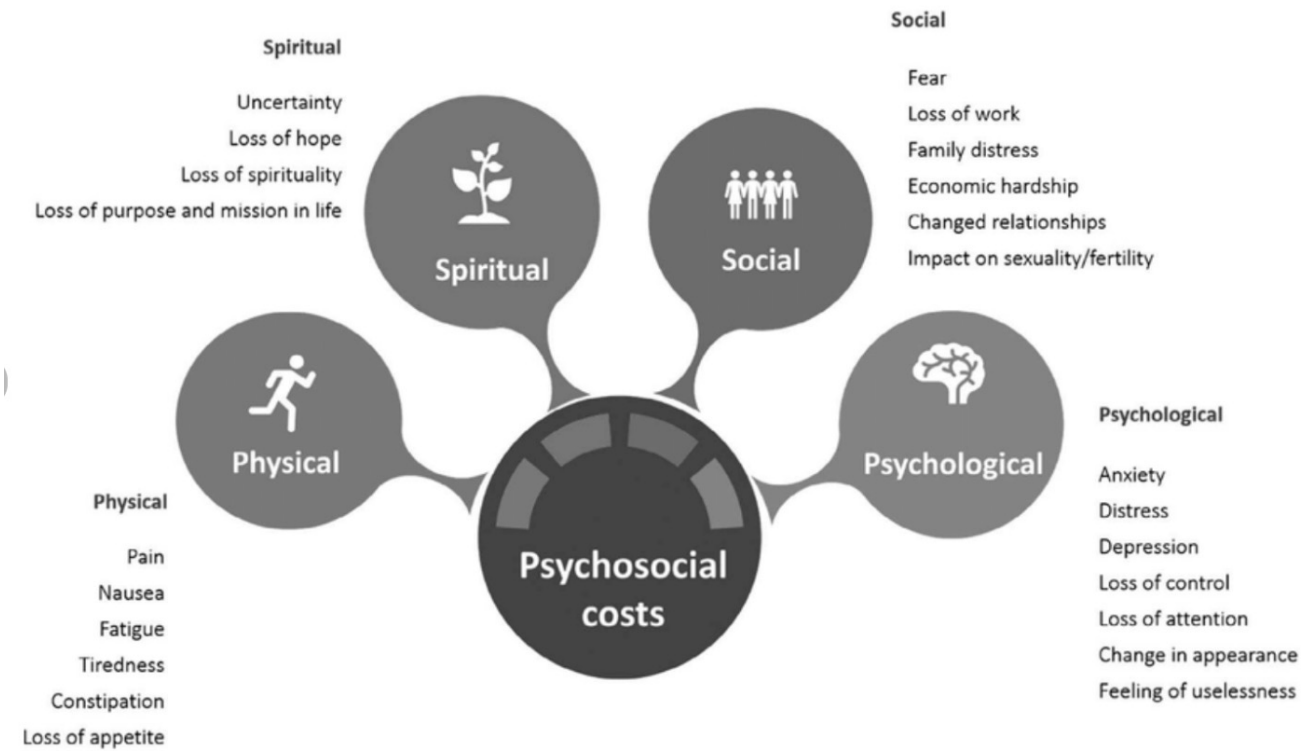
Targets of psychooncologic interventions

Dialogues Clin Neurosci. 2018 Mar; 20(1): 13–22.

Cancer disease + psychosocial factors

Cancer disease is to be regarded as a complex multifactorial process, with psychosocial factors contributing to cancer genesis, as well as progression;

Conversely, the disease leads to many psychosocial challenges and changes.



Predictors for anxiety, depression, and somatization in a sample of 1807 cancer patients

- They completed surveys assessing psychological distress (BSI-18) before and after cancer treatment and coping (MINI-MAC) and spirituality (FACIT-sp) prior to therapy.
- Patients with localized cancer and spiritual beliefs had reduced psychological distress, whereas those with anxious preoccupation had higher level.
- This study suggests that age, sex, extension and location of cancer, coping and spirituality influence psychological distress in cancer patients.

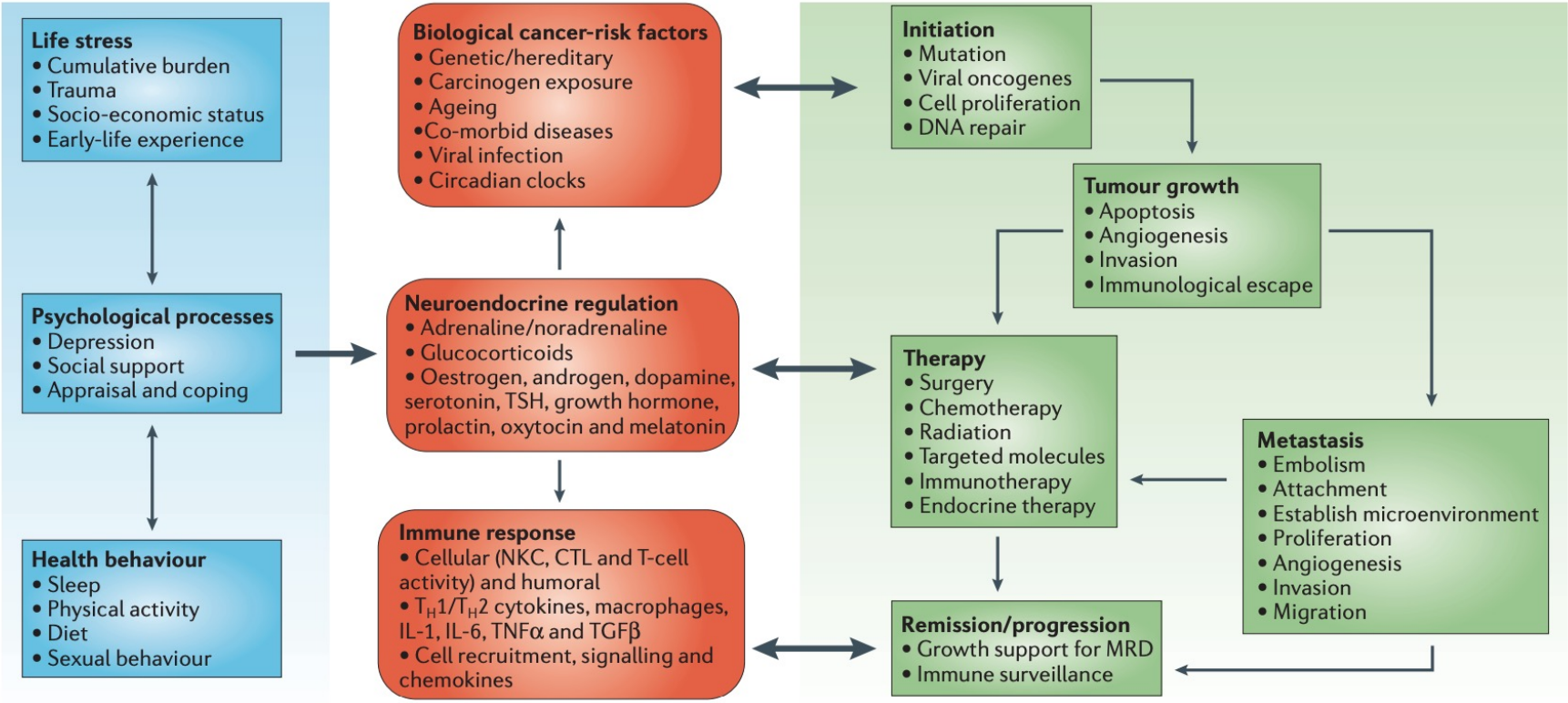
Scientific Reports **volume 14**, Article number: 3188 (2024)

Psychological intervention improves quality of life in patients with early-stage cancer

- The effectiveness of psychological interventions (PI) for malignant diseases is controversial.
- The results were better in the breast cancer group and early stages of cancer.
- PIs do not prolong survival, but they significantly improve the QoL of cancer patients.
- PI should be added as standard of care 3–4 times a year, at least for patients with early-stage cancer.

Scientific Reports **volume 14**, Article number: 13233 (2024)

Integrated model of bio-behavioural influences on cancer pathogenesis through neuroendocrine pathways.



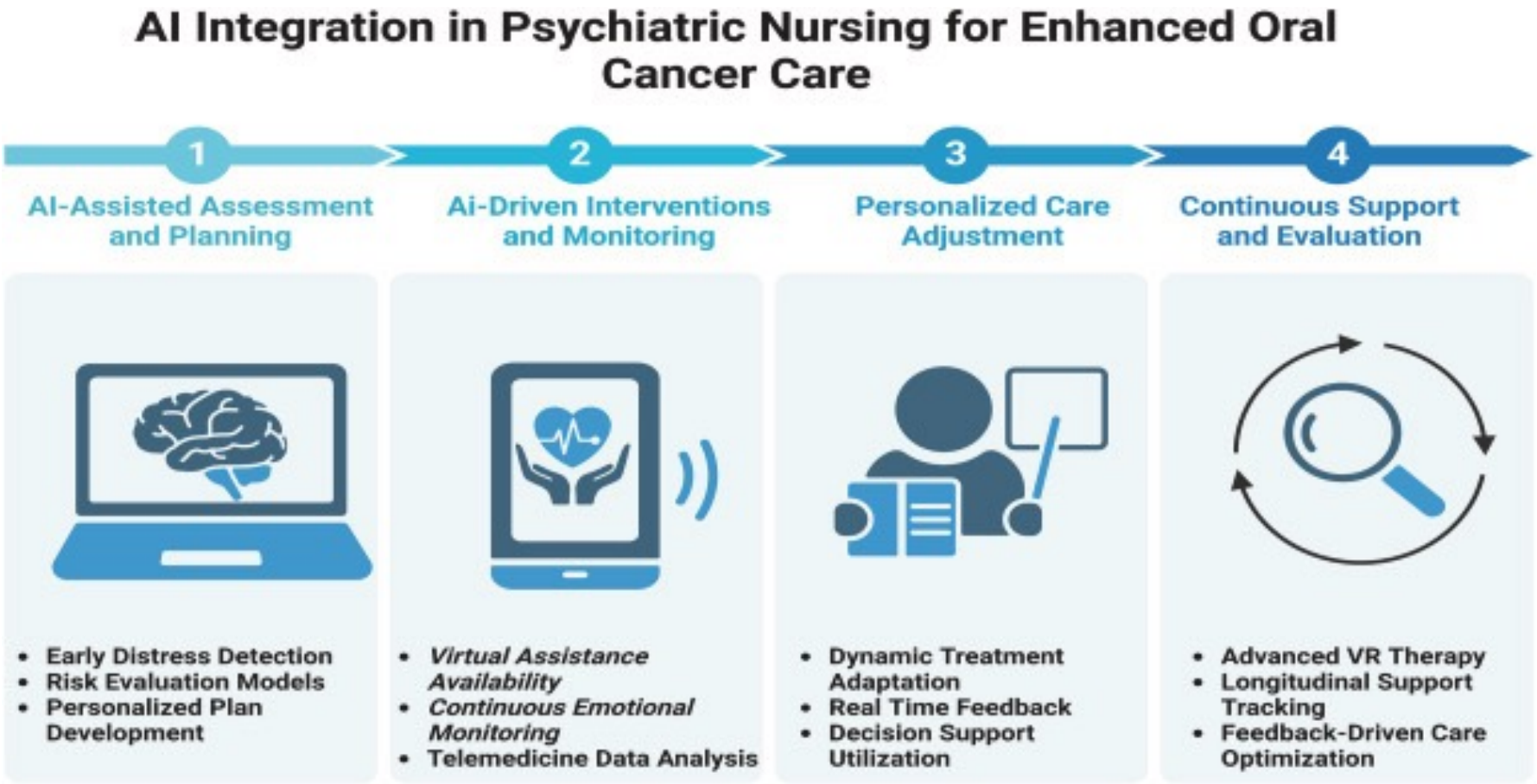
Nature Reviews Cancer **volume 6**, pages240–248 (2006)

Predicting which patients with cancer will see a psychiatrist or counsellor from their initial oncology consultation document using natural language processing

Early detection of who requires referral to a counsellor or psychiatrist may improve their care. This work used natural language processing to predict which patients will see a counsellor or psychiatrist from a patient's initial oncology consultation document.

Communications Medicine **volume 4**, Article number: 69 (2024)

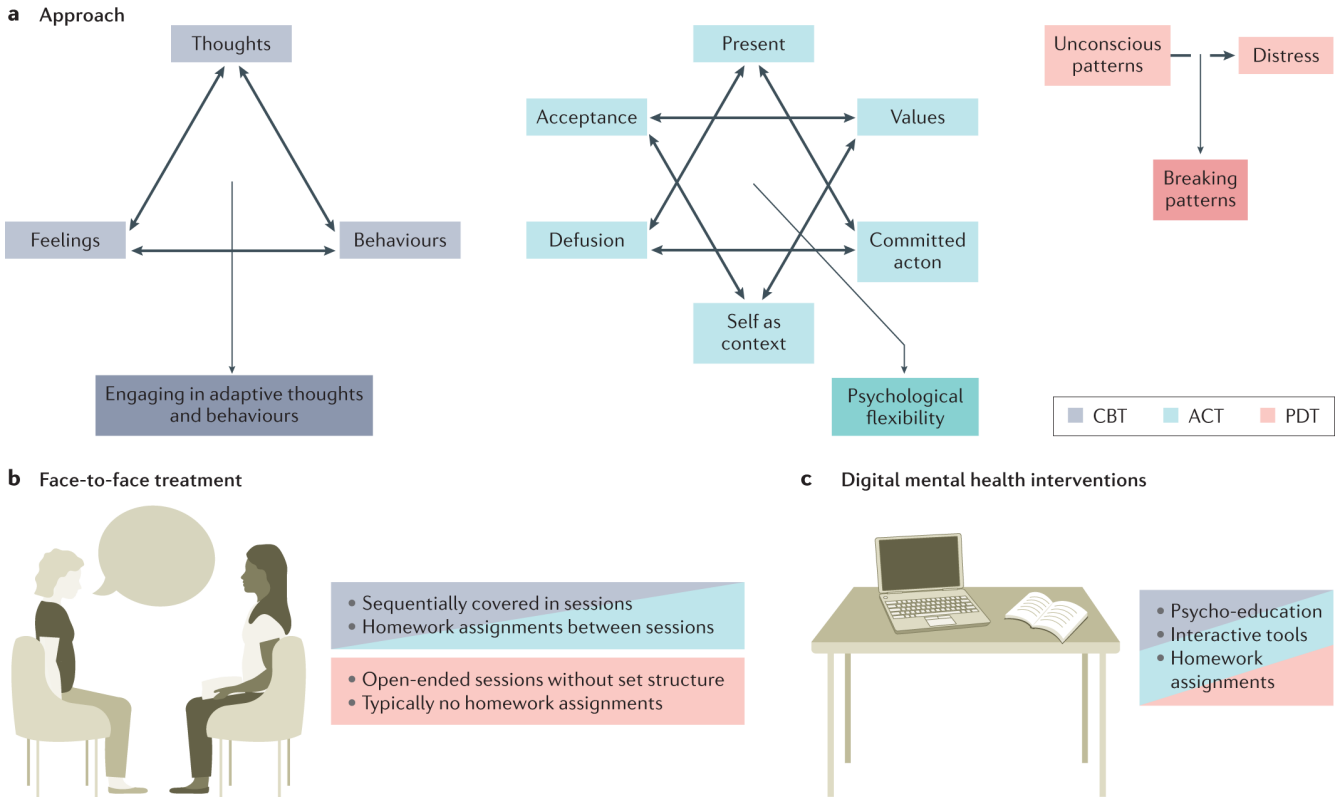
Artificial intelligence-assisted nursing interventions in psychiatry for oral cancer patients



Oral Oncology Reports Volume 10, June 2024, 100343

Recommendations for more accessible digital mental health services

Digital mental health services, such as those delivered by mobile phone or web-based platforms, offer the possibility of expanding the reach and accessibility of mental health care.



Nature Reviews Psychology **volume 1**, pages87–100 (2022)

Digital remote monitoring intervention (CAPRI) for patients receiving oral anti-cancer therapy.

Particularly in terms of information and psychological support

Nature Medicine **volume 28**, pages1128–1129 (2022)

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