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Editorial

Editor:

Dr Abdulrazak Abyad

Chief editor

This the second issue this year and I am including a review paper on the effect of laughter on elderly patients. I feel that this topic is not tackled adequately in the region.

A paper from Iran explores the impact of physical health on utilization of health and aged care services among elderly Iranian immigrants to Australia. The authors stressed that participants who did not speak English at home were more likely to have greater limitations in their physical functioning. Elderly Iranians with better English proficiency reported less need for help and supervision in ADL; they were also more likely to access health care services.

In the second part of a paper on pressure ulcers, from Saudi Arabia, the author continued discussing the issues of prevention of pressure ulcers and risk assessment tools. This part will also cover possible interventions which can be applied to prevent pressure ulcers.

A paper from Jordan evaluated the experience in regional anaesthesia in patients with fractured neck of femur who were considered high risk for general anaesthesia. The authors looked at data for 49 elderly patients aged 70-95 years with fracture of the neck of femur. There were no intra-operative or immediate post-operative complications and there was no need for postoperative admission to the intensive care unit. The patients were pain free throughout surgery and for 3-6 hours post-operatively. The patients enjoyed their next meal and were mobilized the next morning. The authors concluded that peripheral nerve block appears to be an attractive method to handle proximal femoral fractures in the elderly, especially in situations with limited intensive care units available.

The paper on effect of humor stressed that Humor is frequently postulated to be therapeutic. Humor as a holistic nursing tactic can be utilized in various health-care settings as a way to cope with stress and anxiety, to lessen depression, to dispel aggression, to enhance communication and reinforce relationship. In the elderly, being capable of resolving conflicts through humorous discharges of energy may give the aged person a sense of fulfillment and contentment with life.

Dr Rezaeian M discussed the use of scatter plot in research. He stressed that the first and foremost important step in the data analysis process is to display data using graphical methods. Where two features in a study can be measured accurately, a visual presentation such as a scatter plot may indicate an interesting relationship, if it does not seem random. This helps researchers to understand the relationship between different variables in a particular dataset. It also aids investigators to make the appropriate decision about how to further analyze the data by applying the most suitable statistical models. The chief aim of the present article therefore, is to examine one of the most powerful graphical diagrams for data visualization i.e. a

scatter plot using a real public health dataset.

Surgical Treatment of Neck of Femur Fracture Using Regional Anaesthesia in Elderly Patients

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ABSTRACT

The aim of this study is to evaluate our experience in regional anesthesia in patients with fracture of neck of femur who were considered high risk for general anesthesia. We present 49 elderly patients aged 70-95 years with fracture of the neck of femur (17 displaced intra-capsular, 32 extra-capsular), who all had pre-existing advanced systemic illness (American Society of Anesthesiologists (ASA) Class III and IV). On preoperative investigation and evaluation by an internist and anesthesiologist they were considered high risk of general or spinal anaesthesia. Their medical condition was stabilized within 24-48 hours and then fixation of the extra-capsular fractures was performed using a compression hip screw with sliding plate and an Austin Moore Hemiarthroplasty was performed for the displaced intra-capsular fracture. Surgery was carried out under simultaneous block of the femoral nerve, lateral cutaneous nerve of the thigh, sciatic nerve and obturator nerve using a mixture of the lignocaine and bupivacain. There were no intraoperative or immediate post-operative complications and there was no need for postoperative admission to the intensive care unit. The patients were pain free throughout surgery and for 3-6 hours post-operatively. The patients enjoyed their next meal and were mobilized the next morning. The average hospital stay was 10 days. Short term follow up revealed 2 deaths. A deep wound infection developed in 1 patient, urinary tract infection in 10 patients and bed sores in 6 patients. In conclusion, we found that peripheral nerve block appears to be an attractive method to handle proximal femoral fractures in the elderly, especially in a situation with limited intensive care unit availability.

Key words: Neck of femur fracture, Regional anesthesia, Surgery in elderly.

Introduction

The fracture of the proximal femur in an elderly patient is a common and important cause of mortality and functional loss^{1,2}. It is a challenge for the orthopaedic surgeon. Most of the elderly population have varying degrees of pre-existing medical illnesses e.g. cerebral dysfunction, cardiovascular, respiratory, renal, metabolic and other locomotor problems; no current literature advocated non-surgical treatment for these fractures. These patients should be fully evaluated and resuscitated before being taken to the operating room. The best time for surgery is controversial. In one study, surgery in the first 24 hours increased the one year mortality³, but in another, the first year mortality doubled if surgery was delayed for three days⁴.

Reports on the mortality rates after fractures of the proximal femur in the elderly are variable³, and one study reported a higher mortality following spinal anesthesia than following general anesthesia⁵. In a meta-analysis of 106 published reports on the outcome of displaced fractures of the femoral neck, the mortality rates varied from 6-13% in the first postoperative month to 21-36% one year postoperatively⁶. The type of surgery (fracture fixation, hemi of total hip arthroplasty) was not found to affect mortality rate, but to affect the quality of life, state of ambulation, degree of pain, failure rate and the need for a second operation^{7,8}. In elderly, at risk patients, it is wise to choose surgery with the least possibility of needing revision⁹. The correlation between the mortality rate and the type of anesthesia is still controversial.

General and spinal anesthesia derange the metabolic state, hormonal, fluid and electrolyte balance and function of all organs; specific complications are cardiac and respiratory depression, chest infection, hypotension, deep venous thrombosis, liver dysfunction and ileus^{10,11,12}. In comparison, the effect of peripheral nerve block remains local. In meta-analysis including 17 comparative and randomized studies, shows a smaller mortality rate in the first month after the surgery when the regional anesthesia is used¹³. At least, regional anesthesia reduces the intraoperative hypotension and the need for postoperative intensive care unit¹⁴.

The aim of this study is to evaluate our experience in regional anaesthesia in patients with fracture of neck of femur, who were considered high risk for general anaesthesia.

Methods

Between January 1999 and December 2007, we treated 49 elderly patients with fracture of the proximal femur, whose ages ranged from 70-95 years with a mean age of 78 years. 17 patients (12 females and 5 males) with a mean age of 80 years had a displaced intra-capsular fracture of the neck of the femur (Garden III-IV). 32 patients (24 males and 8 females) with a mean age of 78 years had an extra-capsular fracture of the neck of femur. These patients were selected from a large group of patients with fracture of the proximal femur, because they had three or more serious preexisting systemic illnesses (e.g. hypertension, uncontrolled diabetes mellitus, cardiac insufficiency, pulmonary dysfunction, cerebral dysfunction, renal, and metabolic or other locomotor illnesses). Upon investigation and evaluation by an internist and anesthesiologist they were considered high-risk patients for general or spinal anesthesia. All were categorized as ASA class III-IV.

Patients received treatment to stabilize their condition within 24-48 hours prior to surgery. The surgical technique under peripheral nerve block was discussed with each patient and their family. Oxygen tension, ECG and blood pressure were recorded every 5 minutes throughout surgery. A mixture of lignocaine 0.5%, (4 mg/kg body weight) and bupivacaine 0.5% (21/kg body weight) was prepared and divided into four syringes. The areas for each nerve block were scrubbed and draped, care was taken to inject under strict aseptic technique, and for each nerve block repeated aspirations were performed to avoid injection into blood vessels.

Femoral Nerve Block

With the patient in a supine position, the femoral artery is palpated as it emerges from under the inguinal ligament. A 22-gauge needle is inserted 5 cm below the inguinal ligament just lateral to the palpating finger. Paresthesia is sought as the needle pierces the subcutaneous fat. If this is not obtained, the needle is moved fanwise from medial to lateral and a 20 ml mixture of 16ml lignocaine 0.5% (80mg) and 4ml bupivacaine 0.5% (20mg) of local anesthetic is injected.

Lateral Femoral Cutaneous Nerve Block

With the patient supine the anterior superior iliac spine is palpated and at a point 3 cm medial to the anterior superior iliac spine and just inferior to the inguinal ligament a 6 cm 22 gauge block needle is inserted perpendicular to the skin. When

the needle has passed beneath the fascia, paresthesia may be elicited. The exact depth depends on the amount of soft tissue but usually it is 1.5-4.5 cm. If the bone is contacted prior to obtaining paresthesia, the needle is withdrawn to subcutaneous tissue and the procedure is repeated in a fanwise direction. Once paresthesia is elicited 20ml of the anesthetic mixture (80 mg lignocaine 20 mg bupivacaine) is injected.

Obturator Nerve Block

The patient is supine with legs slightly spread apart. The spine of the pubic bone on the involving side is identified, and a skin wheal is made 3 cm lateral and inferior to it. The skin and subcutaneous tissue is infiltrated by 10 ml of 0.5% lignocaine. The 9 cm block needle is inserted perpendicular to the skin wheal until the upper part of the inferior pubic ramus is contacted at a depth of 1.5-3 cm, the needle is redirected to slip past the inferior ramus and just underneath the superior pubic ramus and is then advanced an additional 4.5 cm in a lateral and slightly inferior direction. The needle tip should now lie in the area of the obturator foramen. Paresthesia is only occasionally elicited. 10 ml of the anesthetic mixture (40 mg lignocaine+ 10 mg bupivacain) is infiltrated as the needle is moved back and forth slowly.

Sciatic Nerve Block

With the patient supine, the hip is flexed as in the lithotomy position and held by an assistant, just above the gluteal fold and in the middle high way between the ischial tuberosity and the greater trochanter a skin wheal is made. A 9 cm 22 gauge needle is inserted perpendicular to the skin. Paresthesia is usually obtained as the needle is advanced to a depth of 6 - 7.5 cm. If paresthesia is not obtained the needle should be pulled and moved fanwise from medial to lateral until paresthesia is obtained. Then 20 ml of the anesthetic mixture (80 mg lignocaine +20 mg bupivacain) is infiltrated.

The solution was injected over a two-minute period after confirmation of position and repeated aspiration. The onset of blockade was assessed at 2 minute intervals. After 10-25 minutes the patient was ready and placed on the operating table (Fracture table in cases of extra-capsular fracture). An intravenous injection of a sedative and analgesic combination (1.5-3 mg midazolam with 20-30 mg ketamine) had been used for all cases starting surgery.

All patients received prophylactic second or third generation cephalosporin with the first dose at the start of surgery and continued for five days. Closed reduction under image intensifier and internal fixation by a compression hip screw and a sliding five holes plate was performed for the extra-capsular femoral fractures. An Austin Moore Hemiarthroplasty was performed for the intra-capsular fractures of the neck of the femur, through a posterior approach. The surgery time was 40-60 minutes. Postoperatively the patients received an average of one hour in the recovery room, and they then went back to the ward, and were allowed to take their next meal. Most of the patients needed further analgesic doses of diclofenac or pethidine after 3-6 hours for 24 hours and irregular doses of non-steroidal anti-inflammatory drugs upon request in the successive days. Next morning every effort was made to mobilize patients and medical care was continued until discharge from hospital in one to two weeks. The patients

were seen at the outpatient clinic after four weeks.

Results

All 49 patients with fractures of the proximal femur had successful pain free surgery without intraoperative or immediate postoperative complications. The patients' blood pressure, ECG and urine output were steady throughout the operation and in the recovery room. Post-operative analgesia for 3-6 hours was achieved and post-operative confusion was minimal. The patients were able to eat shortly after their operation and were out of bed in less than 24 hours. The average stay in hospital was 10 days. At discharge 80% were able to walk with assistance. 5 patients did not keep their 4 week follow-up appointment. The two patients who died after the operation were over 80 years old and the main cause of death was multiple systemic failure due to different chronic diseases such as end stage of diabetes mellitus, hypertension, congestive heart failure, and septicemia. The mortality rate

was 6% in the first six weeks. 10 patients (4 males and 6 females) developed mild to moderate urinary tract infection, which resolved after removal of the Foley's catheter and antibiotics. One patient with a pin and plate fixation was readmitted after discharge with a deep wound infection. This responded to treatment and he was discharged after 3 weeks. 6 of the 11 non-ambulatory patients developed pressure sores on the buttocks and heels. None of the patients needed to be admitted to the intensive care unit postoperatively or developed a clinically obvious deep venous thrombosis, pulmonary embolism, or stroke during the first 6 weeks, the remaining patients did not show worsening of their medical status.

Discussion

We have limited our study to a short-term follow-up of 6 weeks to compare it with similar short term studies of surgery performed under general and spinal anesthesia^{5,15,16}. The number of patients in our study was relatively small because surgery of the fractures of the proximal femur under peripheral nerve anesthesia is not a routine practice in our hospital. The ASA physical status of elderly patients was found to be a good predictor of mortality within one month of surgery. There was 2% mortality in patients of class ASA I and 25% morbidity in patients of class ASA IV¹⁴. In a post-operative multi-centre trial of mortality, six weeks following general or spinal anesthesia for hip fracture surgery in elderly patients in hospital, mortality varied from 2.7% to 28%. There was no difference between general and spinal anesthesia, but delaying surgery increased the rate of mortality³. Our 6 weeks mortality rate was low (6%) compared to other series^{3,4,6,16,17,18}. The complication rates were 2% wound infection, 2.5% pneumonia, 20% urinary tract infection and 12% bed sores.

We found that surgery on the hip region under peripheral nerve blocks has the following advantages:

- A) It avoids post-operative mental confusion, which may occur in 30% to 50% of patients after general anesthesia¹⁹.
- B) It avoids hypothermia resulting from loss of the shivering reflex²⁰.
- C) It avoids respiratory depression, chest infection and atelectasis^{11,18}.

D) It avoids cardiac depression and failure.

E) It avoids overloading by intravenous and electrolyte imbalance.

F) It avoids loss of automatic tone, postural hypotension and urine retention²¹.

G) It avoids decrease of renal blood flow and decrease in glomerular filtration rate^{10,11}.

H) It avoids hepatic derangement^{10,11}.

I) It preserves the gastrointestinal function and avoids constipation and mucosal atrophy^{10,11}.

J) Early mobilization decreases the influence of deep venous thrombosis, pulmonary embolism, bed sores and shortening hospital stay.

K) Intraoperative communication can be maintained with the patient.

Care must be taken not to exceed the recommended dosage of 25 mg / kg body weight for plain bupivacaine and 5.5% mg / kg body weight for plain lignocaine²². We used intravenous ketamine to increase the analgesic effect and combined it with midazolam for sedation. Patients tolerated the procedures well. Occasionally there was a little discomfort during infiltration of the local anesthetic in a special position e.g. for the obturator and sciatic blocks.

Conclusion

There are several physiological and psychological benefits to clients in humour, and is seen as an important refinement by older adults. Based on research and other scholarly views, humour is a suitable method to encourage with older adults in both community and long-term care settings. Nurses need to think about humour as a communication tool to decrease tension and demolish barriers between nurses and older clients.

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Original Contribution/Clinical Investigation

Physical Health Status: Effect of Physical Health Components on Utilization of Health Services and Community Aged Care Services among The Iranian Elderly in the Sydney Metropolitan Area

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ABSTRACT

Objective: The present study explores the impact of physical health on utilisation of health and aged care services among elderly Iranian immigrants to Australia. Since data on the physical health status of the Iranian elderly are non-existent, this study will, in part, fill the gap in gerontological knowledge in Australia and Iran.

Method: 302 Iranian immigrants aged 65+ participated. A quantitative technique was used. Data were collected using a written survey instrument, face-to-face interviews, and telephone interviews.

Results: The elderly Iranian participants were found to have significantly more limitations in physical functioning, and greater need for assistance in Activities of Daily Living. Conversely, participants were less likely to have used any form of basic aged care services during the previous week, and used fewer supportive aged care services during the previous month. The majority of participants (96%) did report using a range of health care services in the previous year.

Conclusion: Participants who did not speak English at home were more likely to have greater limitations in their physical functioning. Elderly Iranians with better English proficiency reported less need for help and supervision in ADL; they were also more likely to access health care services.

Keywords: Activity of Daily Living, Aged care used, Elderly, Health service utilization, Physical functioning.

Introduction

Ageing is associated with an increase in functional limitation and in the occurrence of chronic conditions^[14]. As people age, they tend to use more hospital services and prescription medicines. Chronic diseases, and long-term illnesses that are rarely cured, are the cause of disabilities and diminished quality of life, and are a major contributor to the need for health care services^[11,14].

Studies of the physical health in the Australian population reveals that the ethnic elderly who have spent a considerable part of their lives in Australia and have adapted to Australian culture exhibit risk behaviours common to native Australians. Therefore, elderly migrants are as much at risk of obesity, heart disease, cancer and diabetes^[16].

Physical functioning

One measure of health status is physical functioning. The incidence of core activity restriction increases significantly

after the age of 65 years^[4]. For those aged 65+ who have a disability, 54% live alone of which 16% have a severe disability^[9]. The 1999 Older People's Health Survey^[13] covered several areas of physical functioning, including the SF-36 measure of physical functioning, questions on sight and hearing, experience of pain, ability to carry out Activities of Daily Living, and whether any changes had been made to the home to make it easier to live in. Although the SF-36 measures eight different aspects of health, using different scales, only the physical functioning scale was used in the Older People's Health Survey. The scale comprises questions concerning a person's ability to do various moderate and vigorous activities. Physical functioning, as measured by the SF-36, was better among males than females of all ages. 55% of elderly respondents were able to carry out all ADL independently. Two-thirds of Australians 75+ years old reported having activity restriction in communication, mobility or self-care, and for 50% these people the core activity restriction was classed as severe or profound^[9]. Assistance has been documented as being required with at least one ADL for 77% of people 75+^[4]. A significant proportion (40%) of people aged 75+ have reported their health as fair or poor due to conditions that affected their lifestyle, independence and health status, such as arthritis (for about 50% of the older population), deteriorating eyesight and hearing loss (36%), hypertension (40%), and 18% heart disease^[9].

Chronic illness

Physical activity is difficult for elderly with chronic diseases. Evidence from the National Health and Nutrition Examination Survey and other population studies conducted in the USA suggests that the prevalence of inactivity is considerable among adults, increasing substantially among those aged 65+^[17]. For individuals with chronic health conditions such as arthritis, other forms of ADL such as performing household duties may promote wellbeing more effectively than physical activity. Arthritis is the nation's leading cause of disability, limiting activity and resulting in hospitalisation and outpatient visits^[12].

Chronic disease and getting old often lead to disabilities and becoming increasingly limited in being able to walk, climb stairs, and stoop. As such, chronic diseases without doubt lead to limitations in ADL, forcing people to rely on home care and/or rehabilitation care, and, in many cases, to be institutionalised in assisted living facilities or nursing homes^[18]. Thus as the elderly with chronic diseases and disabilities become even older, they usually require long-term care^[7].

According to^[1] responses to the need for "required assistance in everyday activities" indicated that those 55+, born overseas and having a lower command of English were more likely to need assistance than their Australian-born counterparts^[6].

A random sample health care study in Australia showed that among those aged 75+, of which 6.4% were from a non-English speaking background, chronic conditions were the most frequent reason for using health care services. These chronic conditions included psychological problems (dementia and Alzheimer's disease), circulatory problems (stroke, heart failure and arterial fibrillation) and osteoarthritis, while

hypertension was the second most common reason^[15].

Further understanding of the relationships between physical health, and utilization of health and aged care services may inform the design of effective intervention programs for older immigrants.

Methods

Participants and Procedure

Census data estimates that 1,209 Iranian-born immigrants aged 65+ live in the Sydney Metropolitan area^[3]; 302 elderly who had lived in this area for at least six months participated. This sample size (with power approaching 0.5) was considered adequate for the purpose of the study. Questions used in the study were drawn from the NSW Older People's Health Survey 1999, a state-wide telephone survey with questions designed and validated for telephone data collection^[13]. That state-wide survey included a variety of demographic measures in addition to closed-ended and multiple-choice questions about mental and physical health and the use of health and aged care services. The questions selected for use in this study were translated into Farsi (the native language of most Iranians) in line with guidelines for cross-cultural adaptation of self-report measures^[5].

Two people, fluent in Farsi and English, independently translated the questionnaire from English to Farsi. The two versions were compared at a consensus meeting during which differences were discussed and a consensus version was developed.

Data for the present study were collected through a variety of methods: telephone interviews, face-to-face interviews, and a written survey instrument returned by mail. The research project was publicized in weekly Iranian newspapers and on radio stations that broadcast in Farsi. In an attempt to reach as many elderly Iranian immigrants as possible, surveys were distributed at places and events that were likely to be frequented by the target population.

Measures

The questionnaire used in the present study asked about demographic variables (age, gender, education, marital status, living arrangements, number of children living in Australia, financial status, government benefits, home ownership) and acculturation (language spoken at home, self-assessed English proficiency, and duration of residence in Australia). The survey also included questions to identify participants' physical functioning, ability to perform ADL, utilization of health services, and use of aged care services.

Physical functioning was measured using 10 items from the SF-36 (short form 36) Health Survey^[19]. Participants were asked the extent to which their health limited them in their ability to engage in various activities (e.g., climbing one flight of stairs) on a 3-point scale (a lot, a little, not at all). Scores were summed for each participant and classified as: no limitations (24 to 30), some limitations (17 to 23), or limited physical function (10 to 16).

Participants' ability to perform ADL was assessed with five "yes" or "no" questions^[10].

Three questions asked whether respondents could perform

various activities on their own (e.g., household duties) and two asked whether respondents needed help or supervision to perform personal care activities (e.g., bathing). Scores were summed for each participant, yielding an ADL score. ADL scores were classified as high (4 or 5), moderate (2 or 3), or low (0 or 1).

Participants were asked if they had received any of three basic aged care services (assistance with household duties, personal care, and meal preparation or delivery) in the last week and any of five supportive aged care services (e.g. transportation for errands or medical appointments) in the past four weeks. A total score for basic and supportive aged care services was derived by summing across the three and five items respectively.

Participants were also asked to respond “yes” or “no” to six questions about their use of health services during the preceding 12 months (e.g. seen by a GP or local doctor, spent at least one night in hospital) and a total score for health service use was derived by adding the scores for those six services.

Data Analysis

The data were analysed using SPSS V15.0 for windows. T tests and one-way ANOVAs were used to identify significant variables.

Results

A total of 302 participants completed the survey. Nearly equal numbers of men (49%) and women (51%) participated. The largest age category comprised participants aged 65 to 69 (46%); 21% were 70-74; 16% were 75-79; and 17% were 80 or older. Most (65%) were married; 24% were widowed; and 10% were separated or divorced. Many (45%) lived with a spouse or partner; 28% lived in the home of one of their children; 7% lived with other family or friends; and 21% lived alone.

The majority of participants (74%) had difficulty communicating in English: 28% could not communicate at all in English, and 46% could not communicate well in English.

Length of stay in Australia more than 10 years was 71.5% and recent migration to Australia less than 10 years, was 28.5%. Among those who had reached the retirement age, only 7% respondents were employed. With respect to financial situation, 17% of the Iranian elderly respondents reported they were living comfortably. A similar proportion (16%) claimed financial difficulty and the majority (67%) stated that they were able to manage. A great majority (78.5%) rely on Medicare and/or health concession card while less than a quarter (21.5%) of elderly who participated in this survey had private health insurance.

The greater part of the Iranian elderly respondents (71%) suffered from one or more chronic disorders/diseases. The most common problems were arthritis (21.9%), incontinence (17.9%), and high blood pressure (11.9%).

Physical functioning distribution in Iranian elderly reveals that the majority of respondents (84.4%) had a health limitation in doing vigorous activities (such as running, lifting heavy objects or participating in strenuous sport); many (69.9%) had moderate limitations in doing activities such as moving

a table, pushing a vacuum cleaner, playing lawn bowls or golf or bushwalking; 68.5% respondents had a health limit in lifting or carrying groceries; and about three quarters (73.2%) of elderly respondents had a health limit in climbing several flights of stairs. 69.2% respondents had physical functioning limitation in walking more than one kilometre or about half a mile, followed by a limitation in bending, kneeling or stooping (68.5%). However, only a fifth (20.9%) of respondents had physical functioning limitation in bathing or clothing independently.

Not quite half of respondents were rated no limitation in their physical functioning (40.7%). About the same (41.1%) experienced moderate limit in their physical functioning conditions to do moderate and vigorous activities and only one fifth of respondents (18.2%) claimed to suffer from a high level of limitation in their physical functioning.

Distribution of ADL confirms that 64.2% of elderly respondents were capable of doing their household duties like laundry, vacuuming or dusting by themselves; also 76.5% said that they could prepare their meals, and 43.7% of respondents could do their home maintenance or gardening. However, 16.9% of them claimed to need help or supervision with personal care such as showering or bathing, clothing or getting to the toilet. In the meantime, 25.5% reported the need for help with cutting their toenails.

Rating outcomes of ADL demonstrate that 56.0% of respondents were rated as in the less need for supervision level in their ADL. About 29.8% rated in the moderate need supervision level, followed by 14.2% who had high need of supervision.

Table 1 provides an association between categorical community aged care services data and physical functioning limitation in the Iranian elderly respondents. For respondents who cannot do their household duties, home maintenance or personal care on their own, the result shows that there are significant differences between the three types of tasks for which respondents need help ($F = 23.64, P = .000$). This shows that respondents who need help for community basic maintenance services were more likely to have a high limitation in their physical functioning ($M = 19.20$), followed by elderly who need help for community supportive services ($M = 22.00$). Additionally, there were significant differences between utilisation of interpreter services and organised community aged care services, ($F = 9.66, P = .003$). This shows that individuals who continually used any kind of aged care services or an organised community aged care services (such as community nursing, home care, respite care, day care services, meals on wheels, home visiting, home maintenance and transportation), were more likely to have a more limited physical functioning ($M = 16.63$) in comparison to elderly who used only interpreter services ($M = 19.95$).

Findings also show that Iranian elderly who need help from community basic maintenance aged care services were more likely to need high supervision in their ADL ($F = 33.31, P = .000$). Furthermore there were significant differences between utilisation of interpreter services and organised community aged care services, ($F = 9.63, P = .003$). This shows that individuals who continually use any kind of aged care services or an organised community aged care service, were more

likely to need a higher level of supervision in their ADL ($M = 1.76$) in comparison to elderly who used only interpreter services ($M = 2.77$)

A series of univariate analyses was carried out, followed by linear and multiple regression analyses. Table 2 shows that use of health services was predicted by four health variables: psychological distress/ K6 ($\beta = -.293$); wellbeing ($\beta = -.289$); physical function/SF-36 ($\beta = -.546$); ADL ($\beta = -.482$). This shows that elderly, who had a lower level of physical functioning and a lower level of ADL, were less likely to use health services.

Discussion

These results show that most participants suffered from at least one chronic medical condition. These findings support those [16] on the general Australian population who suggests that elderly migrants are at risk of heart disease and diabetes - conditions associated with high blood pressure.

Participants with chronic medical problems are more likely to utilise health services. This finding is supported by [15] study that among migrant people aged 75+, chronic conditions like hypertension and osteoarthritis were the most frequent reason for using health care services.

The results suggest that elderly with more limited physical function, and unable to perform ADL, were more likely to use health services. This finding is supported by studies conducted in other immigrant communities, for example, in the USA where older Mexican immigrants are more likely to present to an emergency room than use mental clinic services [8].

Utilisation of aged care services too is predicted by mental and physical health status. The results suggest that Iranian elderly, who were more limited in physical function, and in greater need of help or assistance with ADL, were less likely to use aged care services. This finding is confirmed by the report of [2] stating that elderly migrants with physical problems or other disabilities were under-utilising a range of community services such as nursing homes or hostels.

Conclusion

Generally, elderly respondents with chronic medical problems were more likely to use different types of health services than those with acute medical problems.

Findings show that those who had a lower level of physical functioning and ADL were more likely to use health services. Elderly unable to do household duties/home maintenance on their own or who needed help with personal care were more likely to suffer from greater limitations to their physical functioning (were more likely to need higher supervision in their ADL).

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Table 1 ANOVA for comparing use of community aged care services with physical functioning in the Iranian elderly respondents

Use of community services components	N	Mean	Std	95% Confidence Interval for Mean		df	F	P
				Lower Bound	Upper Bound			
Ever used community aged care services/HACC						1	9.66	.003**
Interpreters	60	19.95	4.428	18.80	21.09			
An organised community services	33	16.63	5.710	14.61	18.66			
Need more help with any community aged care services/HACC						1	.048	.827
Yes	45	22.20	5.833	20.44	23.95			
No	257	21.99	5.754	21.28	22.70			
Type of tasks need to help						2	23.64	.000***
No need more help	163	23.83	5.285	23.01	24.65			
Basic maintenance services ¹	104	19.20	5.246	18.18	20.22			
Supportive services ²	35	22.00	6.068	19.91	24.08			

1) Basic maintenance services included: household duties, personal care, meals at home

2) Supportive services included: home maintenance, day care service, respite services, special transport

Table 2 multiple regression analysis of health services utilised and health predictors' variables

Criterion	Significant predictor	β - regression coefficient	F	Unique variance due to predictor
Health factors	Psychological distress/K6	-.293	28.09	8.6%
	Well-being	-.289	27.37	8.4%
	Physical function/ SF-36	-.546	127.59	29.8%
	Activity of Daily Living (ADL)	-.482	90.67	23.2%
				[F =34.44 , P = .000, R ² = 31.7%]

Pressure ulcer: Assessment and prevention (part 2)

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Introduction

In this part I will continue discussing the issue of prevention of pressure ulcers and risk assessment tools. This part will also cover the possible interventions, which can be applied to prevent pressure ulcers.

Risk Assessment Tools in a Program of Prevention of Pressure Ulcers

The risk assessment tools measure broad categories of factors that most commonly put patients at risk and that can be committed to interval ratings.

There is evidence that a prevention program guided by risk assessment can simultaneously reduce the institutional incidence of pressure ulcers by as much as 60% while reducing the cost effect.⁽¹⁾

The key of success is through a multidiscipline team approach. The two major team participants are nurses and occupational therapists.

Nurses are responsible for primary risk assessment while occupational therapists offer special skills help in identification of special risks related to setting surfaces, instruction in pressure relief and prescription of positioning devices and wheelchair settings.

In applying preventive programs for pressure ulcer, it is important to choose a risk assessment tool. These tools vary from simple to complex. The US Preventive Services Task Force recommends certain criteria in qualitatively evaluating the appropriateness of screening tests.⁽²⁾ The first criterion is related to the effectiveness of the treatment for the condition predicted and the second relates to the burdens of suffering in terms of mortality, morbidity, discomfort, dissatisfaction or destitution.

The paper and pencil rating scales possess the best balance of characteristics.

The more complex tools such as Laser Doppler flowmetry have higher costs, lack simplicity and practicality of use, and are less accurate predictors than the paper and pencil rating scales.

Two ratings scales have been recommended by the Agency for Health Research and Quality (AHRQ) panel in its pressure

ulcer prevention guidelines.⁽³⁾

The first one is the Norton Scale⁽⁴⁾:

It is reported to have good sensitivity but low to moderate specificity at a score of 14 (Norton scale has a range between 5- 20).⁽⁵⁾

The second one is the Braden Scale⁽⁶⁾:

It has demonstrated good sensitivity and specificity in a variety of settings at cutoff scores that range from 16-18.

The Braden scale has also been demonstrated to have excellent inter rater reliability when used by registered nurses but a lower level of reliability when used by licensed practitioner nurses or nursing assistants.⁽⁷⁾

Clinicians should keep in mind that the risk assessment tools will support their clinical judgment, not replace it. Additional factors should be considered when assessing for risk of pressure ulcer development.

Such factors as the age of the patients could affect the development of ulcer even if the patient's score was high.

Some of the risk factors that have been able to predict who develops pressure ulcers and who does not are advanced age, low diastolic pressure, elevated body temperature and inadequate current intake of protein.⁽⁸⁾

Preventive Interventions

Preventive interventions should become more frequent for those who are at greatest risk of developing pressure ulcer. A good understanding of pressure points will help the health provider to choose the most appropriate intervention suitable for their patients (Figure 1).

Braden and Bergstorm,⁽⁹⁾ have made specific recommendations based on level of risk. They classified the risk level into 4 levels (mild, moderate, high and very high) and they specify recommendations for each level.

There is evidence that this approach leads to more effective and less expensive care.⁽¹⁰⁾

Following certain programs will allow clinicians to direct their attention to the highest risk group and concentrate their efforts to prevent the occurrence of pressure ulcers on them and neutralizing the risk factors.

The following preventive interventions are aimed at reducing the intensity and duration of pressure in both bedfast and chairfast patients:

1) Turning schedule:

Bedfast: Close attention should be paid to an individualized turning schedules. These schedules can be altered to meet the patient's needs. Repositioning should be done with assistance and with attention to good mechanics such as using pillows to protect bony prominences. When using pillows to protect heels, the heels must be checked frequently to ensure that as the pillows compress, they remain free of pressure. If pillows are not effective in protecting the heels, consult with a physical therapist or occupational therapist to construct devices that adequately protect the heels from excessive pressure. The pressure-releasing ankle foot orthoses are often used to prevent pressure on the heel. At higher levels of risk or for emaciated patients, turning schedules should include either increased frequency of turns or assisted frequent, small shifts in body weight. Lateral turns should not exceed 30 degrees.⁽¹¹⁾ Foam wedges are helpful in lateral positioning and can be used to increase the frequency of repositioning by putting it out slightly every 30 minutes to 1 hour. If sedation or narcotics are being used extra attention should be paid to turning those during heavy sedation. Patients can be positioned in the prone position for complete pressure relief over the heels, trochanter and sacral regions. This position is contraindicated in patients who have a gastrointestinal tube or nasogastric tube, due to high probability of regurgitation. In patients with partial or complete paralysis of the diaphragm or trunk, the prone position may impair respiration.

Chairfast: Great attention must also be paid to effective chair positioning as very high interface pressure and shearing forces can develop with poor posture or seating surfaces.

Interestingly, Defloor and Grypdonck had described chair positioning aimed to decrease pressure ulcers.⁽¹⁶⁾

2) Remobilization of the immobile:

During the illness, some patients may become less mobile or even immobile. The nurse should be alert to this. During an episode of illness, it is expected for elderly persons to be less active than is optimal and to enter into a spiral of deconditioning and decline. Physical therapy consultation may be helpful in determining the degree to which remobilization is possible and beginning the process of remobilization. Collaboration between the team and the patient is mandatory to achieve good results. In cases for which the return to full mobility is not possible, the patient can be taught to make small shifts in body position such as moving the legs and shifting weight from one buttock to another.

If the patient is wheelchair bound, he or she needs to be taught to perform a variation of push-ups. This should be done while the wheelchair is locked; the armrests are locked to the wheelchair, the patient grasps the armrest with respective right and left hands and pushes down on the armrest. This should be performed every 15 minutes throughout the time spent in the wheelchair.⁽¹²⁾ Patients could also do lateral weight shifts but this requires good balance and strength. Also, forward weight shifts or rises may be performed but also need good balancing and strength. To increase patient's adherence to pressure relief

maneuvers a reminder for the scheduled times to do this, such as an auditory cue e.g. an alarm wrist watch, may be an effective reminder to perform pressure relief.

3) Use of special support surfaces:

Support surfaces include overlays (mattress or wheelchair seating), mattress replacements or specialty beds. Mattress overlays and mattress replacements may be classified as either static (e.g. foam, gels) or dynamic (e.g., alternating pressure surfaces). Specialty beds are classified as either low-air-loss or air fluidized.

Whittemore⁽¹³⁾ and Reddy et al⁽¹⁴⁾ did two excellent integrated reviews of existing research related to the efficacy of various pressure reduction surfaces.

In my opinion, the systematic review done by Reddy et al is so comprehensive and informative, although they reached a conclusion that there is a need for well-designed RCTs that follow standard criteria for reporting non-pharmacological interventions and that provide data on cost-effectiveness for these interventions, but it contained a lot of information that can be beneficial for readers.

Patient situation is the real guide for suitable options to his/her condition. If the patient is bed-bound, an overlay or replacement support surface, to decrease interface pressure over bony prominences is recommended.⁽¹⁵⁾ If the Braden scale is below 7 or the patient has intractable or severe pain exacerbated by turning, use of low air loss beds may be indicated. Terminal patients need not have a rigorous schedule of turning. Comfort is the goal for them.

A patient who is chair bound also needs special subset surfaces. Defloor and Grypdenk⁽¹⁶⁾ compared 4 surfaces (2 static air, 1 foam and a water cushion). They found that the static air cushions provided the best pressure reduction.

The type of wheelchair back and cushion will depend on the need of sensation and ability to perform pressure relief. Cushions are selected based on their ability to provide pressure relief and prevent pressure ulcers. Other considerations include weight, height, contour, shape, size, and stability versus emersion, composition of materials, cover materials, maintenance and cost.⁽¹⁷⁾ The most common prescribed cushions are gel, air, flotation or a combination of different shapes and materials.

Assessment used to determine pressure ulcer risk assessment with seat cushions may also be used for seat backs.

4) Managing moisture:

Exposure of the skin to extensive moisture from any source can weaken the outer layers and increase the opportunity for skin injury.

Incontinence: it is a common cause of skin maceration and breakdown. Multiple options are available to clinicians such as bladder training, promoted voiding or behavioral methods.^(18,19) If the nurse decides to use a moisture barrier after each incontinent episode, the nurse should use a very mild soap to cleanse the skin, rinse thoroughly and pat the skin dry.

Absorbent underpads or briefs should be used and checked frequently and changed as needed. The use of thin, plastic-

backed underpads should be avoided, as these keep the mattress dry while the patient sits in a pool of urine or liquid stool.

Diarrhoea: it is very caustic to skin and can lead quickly to skin breakdown. If intervention to stop diarrhoea does not bring quick results, a fecal incontinence pouch should be used while further attempts at control are made.

Perspiration: it can be problematic when it is constant, trapped between skin folds or held close to the skin through contact with non-breathable support surfaces. Use of absorbent powders is generally not advisable as the powder may collect in skin folds and become a source of injury.

5) Friction and shear:

Both are very harmful to the skin and make it susceptible to the effect of pressure.

The findings reported by Dinsdale⁽²⁰⁾ were very amazing for me and answered one of the questions on my mind regarding the pathophysiology of pressure ulcer. The question was: what is the amount of the force needed to develop ulcer in healthy and weak skin.

Dinsdale found that, in the absence of friction, a pressure of 290 mmHg was required to produce ulceration while a pressure of only 45 mmHg would produce ulceration in skin pretreated with friction. Although this experiment was done on swine we can learn the effect of friction.

Interventions that can be used to prevent or ameliorate exposure of the skin to friction and shear are:

- The use of a trapeze or turning sheet.
- Ankle and heel protectors
- Hydrocolloid dressings may be used over specific prominences being exposed to friction.

The sacral area could be a victim of shearing forces while the head of the bed elevated or the patient slumps in a chair. Interventions decrease the effect of shearing:

- Maintaining the elevation of the head of the bed at or below 30 degrees
- Duration of high elevation should be minimized in a person with high risk levels.
- Recliner or special chair that allows for backward recline with elevated legs should be considered.⁽⁴⁾

6) Nutritional repletion:

Both long term and short-term problems with nutrition make patients more prone to pressure ulcer development. It appears that an even slightly lower than optimal dietary intake of protein is an especially strong risk factor.⁽²¹⁾

Protein and energy are essential requirements for healing but there is no direct evidence that other elements such as Vit A, Vit C and Zinc are important in building new tissue and healing injured tissue. When there is nutritional problems such as those on parental feeding, nutritional consultation should be done.

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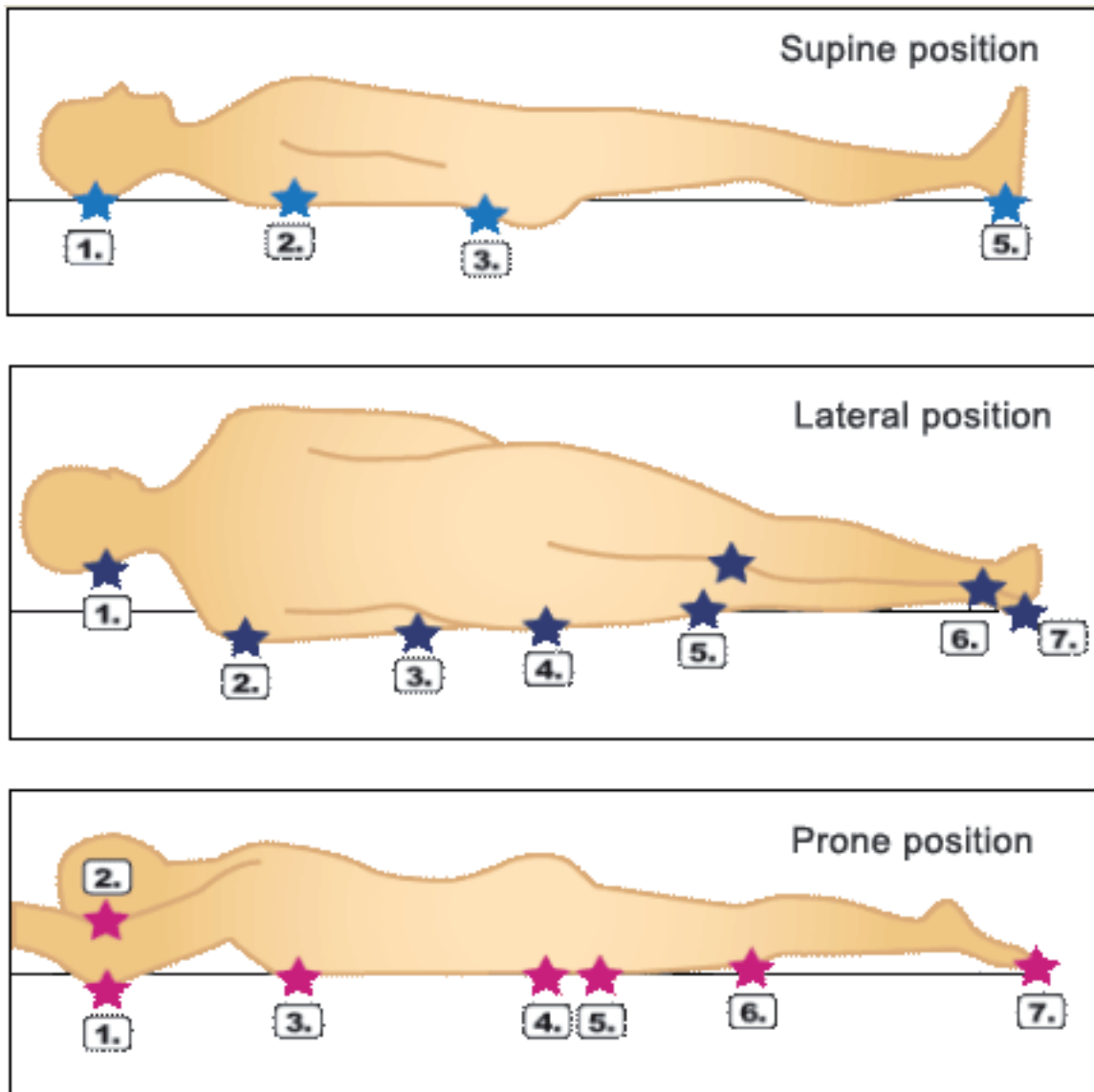
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Figure 1: Pressure points for bed ridden patient



Supine position

- 1. occiput
- 2. scapula
- 3. sacrum
- 4. heels

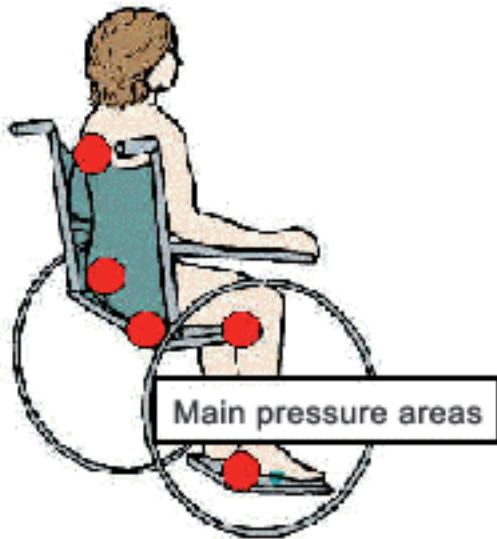
Lateral position

- 1. ear
- 2. acromion process
- 3. elbow
- 4. trochanter
- 5. medial & lateral condyle
- 6. medial and lateral malleolus
- 7. heels

Prone position

- 1. elbow
- 2. ear, cheek, nose
- 3. breasts (female)
- 4. genitalia (male)
- 5. iliac crest
- 6. patella
- 7. toes

Figure 2: Chair fast pressure point



Review Article

Have we Forgotten about Humour?

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ABSTRACT

The past two decades have seen an intensifying stress within the health profession on an increased humanistic approach to the individual. Humour is frequently postulated to be therapeutic. Humour as a holistic nursing tactic can be utilized in various health-care settings as a way to cope with stress and anxiety, to lessen depression, to dispel aggression, to enhance communication and reinforce relationships. In the elderly being capable of resolving conflicts through a humourous discharge of energy, may give the aged person a sense of fulfilment and contentment with life.

Introduction

There are several definitions of humour. Webster's Encyclopaedia Dictionary(1) defines humour as temperament, disposition, mood, or a turn or frame of mind. The archaic definition of humour (humour) is listed as moisture or vapour. The word humour acquired its definition from the medieval doctrine that a domination of any of the four principal fluids (blood, phlegm, yellow bile, and black bile) ascertains a person's character. Consequently, a balance of fluids would result in "good humour" and an imbalance would lead to "ill humour."(2) From the medieval interpretation of humour, the definition has grown into a more special term that refers to that attribute in individuals that produces the entertaining, the funny, the amusing, the laughable, the facetious, the comical(3).

A sense of humour may be perceived in three ways(4). Firstly, the significance of humour can be one of congruity, that is, someone who laughs at the same matter

others do; secondly, humour may be seen in quantitative terms such as the periodicity with which a person laughs, smiles, or becomes readily amused; and thirdly, humour may allude to the extent to which the person tells funny jokes and amuses others. Humour was described as a means of conversation widely used by individuals as a coping mechanism in a diversity of situations, including the health-care system(5). Others(6) define humour as "communication with the unconscious to gain strength for the reality we live in."

Effects and Functions

Norman Cousins(7,8) lately described how he cured himself with the use of humour after he was diagnosed with a collagen disease in 1964, and he has continued to stress the significance of positive emotions in recovering from diseases. Currently,

there is a mounting interest in humour by health professionals, who presume humour has therapeutic worth. To date, humour has been examined from infancy through to adolescence, but minimal research has been done on humour from the developmental viewpoint of the older adult.

Since humour is remarkably individual, it has been defined in terms of its functions. In an extensive critique of the use of humour by health professionals with particular reference to nursing, Robinson(2), identified four functions of humour, relevant to the health of the client which covered communicative, social, psychological, and physiological factors. Humour is described as a way of indirect interaction that conveys messages that are generally emotionally tinged, and potentially inappropriate if expressed directly(5). Thus, humour is used to establish relationships with clients to assure a feeling of faith with health care providers.

In a sociological potential, humour helps in coping with external pressures. For example, the hospital is a social institution where the codes of society are often modified. Humour provides a way for coping with uncomfortable situations and organizational expectations imposed by hospitalization. It helps in substantiating the patient/staff alliance and decreases anxiety in an unusual surroundings(2). The psychological functions of humour connect to coping with stress because it provides freedom from anxiety, tension, hostility, and anger(2,9). The decrease in these emotions encourages a sense of relaxation, well-being, and the capacity to adjust to stressful situations. Moreover, a number of authors have viewed humour as an adaptive coping mechanism. May R(11) states that humour has the function of preserving the sense of self... it is the healthy way of feeling a distance between ones self and the problem, a way of standing off and looking at one's problem with perspective. Whereas Freud, regarded humour as "the highest of defensive processes."⁽¹⁰⁾ According to Freud, humour provides a savings of emotional

energy.

Humour also has physiological functions. Fry's research on the physiological effects of laughter has been the most extensive to date^(11,12). He studied the effects of laughter on heart rate, oxygen saturation levels of peripheral blood, and respiratory phenomena and found that both the arousal and cathartic effects are present in physiological reactions. Laughter augments respiratory activity and oxygen exchange, muscular activity and heart rate, the sympathetic nervous system, and the production of catecholamines (which stimulate the production of endorphins).

The arousal state is followed by a relaxation state in which respiration, heart rate, and the muscle tension return to below normal levels. In this relaxed state, blood pressure is reduced and a state similar to that brought about by exercise exists. Fry concluded that humour is helpful in physical health, in particular in relation to prevention of heart disease and other stress-related conditions.

Humour and health

The information concerning the healing power of humour is anecdotal in nature, in its majority. For example, the only documented report of healing through the use of humour is that of Norman Cousins^(7,8), who used programmed sessions of laughter to induce pain-free sleep, lower his sedimentation rate, decrease paralysis, and help in his recovery from ankylosing spondylitis. Although the use of humour was a part of his "treatment," Cousins was also taking large doses of Vitamin C intravenously in order to recuperate.

There are several studies that have investigated the use of humour by health care professionals. The researchers noticed that humour contributed to the staff's role accomplishment since it provided an escape to discharge tension. One of the nurses said, "You could not work in this place without laughing or you would go crazy."⁽¹³⁾ Warner⁽¹⁴⁾ did a study of how health visitors used humour in child health clinics in London. Content analysis of tape recordings depicted that normally the healthy visitor started the humour especially when there was a possibility for discord. By using humour, health visitors permitted clients to exercise power in determining the direction of conversation. It was concluded that humour helps to appease health visiting goals which otherwise may be unachievable. These positive attitudes toward humour by health professionals were validated in a study by Sumners⁽¹⁵⁾, which described the attitudes toward humour held by the baccalaureate nurses in Texas. The results indicated that the attitude toward humour was positive in their work lives but more positive in their personal lives. These findings indicate that nurses value humour in both their professional and personal lives. Moreover, several studies have concentrated on humour as used with clinical populations. Trutt⁽¹⁶⁾ considered the relationships between humour, taste, locus of control, assertiveness, and reactions to stress in male oncology patients. The results indicated that the psychological factors investigated were not important predictors of type of humour preference. A number of studies^(17,18) have shown the stress buffering role of humour. Other studies^(19,20) have not supported the hypothesis that humour moderates the effects of stress.

Humour and Ageing

Developmental Perspective

Successful aging refers to an individual's capability to adjust to or accommodate the aging process. With successful aging, an individual is apt to persevere an equilibrium between the psychophysiological capacities of the person and the present social surroundings. If a balance is not maintained, then stress ensues. How the person handles stress determines the degree of "success" of the aging person⁽²¹⁾. The adult's sense of "success" or well-being, therefore, is dependent mainly on the adult's ability to appreciate his/her present position with all of its limitations and divert energy for growth and developmental experiences.

From a developmental view, the older adult is an exceptional population to describe in respect to the study of humour. As an individual masters diverse conflicts at distinct developmental stages, the person's sense of humour grows. Thus, humour is perceived as a sign of having attained depth and maturity, for a sense of humour reveals the ego's autonomy and discord⁽⁶⁾. Moreover, humour, patience, artlessness, stamina, and prudence seem to be associated with each other in the developed personality^(22,23).

Many scholars are curious in pinpointing what lead to successful aging. One theory of psychosocial aging is the "activity theory" which states that to age successfully one must persevere with many of the roles and performance patterns of middle age for as long as possible⁽²⁴⁾. Whereas the "life satisfaction theory" assumes that a person has aged successfully if he/she feels happy and fulfilled with their past and present life. The stress on quality of life has connotations for the value of humour in the aging process. Vaillant G⁽²⁵⁾ (as one result of his findings of a longitudinal study of Harvard graduates begun in 1939) identified humour as one of the five mature coping mechanisms available to humans for successful dealing with inconvenient situations. This study, which followed 268 Caucasian men over a period of 30 years, measured adjustment in work, social, psychological and medical areas. Vaillant stated, "Humour is one of the truly elegant defences in the human repertoire". Few would dispute that the capacity of humour, like hope, is mankind's most mighty antidotes of the woes of Pandora's box.

The concept of neoteny was discussed⁽²⁶⁾, which is the withholding of those human traits associated with childhood that extend into adult life, or, in other words "growing young." These physical and behavioural traits have a role in the development of humans. The sense of humour is innate in children since it is detected as early as six weeks of age. Montagu states "The sense of humour enlarges our perspective upon the world, and humour gives us an interior perspective upon ourselves"⁽²⁶⁾. To be able to laugh at oneself is rather more dear than the ability to laugh at others. Clearly humour is one of our greatest and earliest intrinsic resources." Thereby, Montagu contends that development of the neotenous needs of the child will lead to a healthy and satisfied adult⁽²⁶⁾.

Depression

The valuable effects of humour and laughter, have been documented since Biblical times. However, the difficulty with the depressed and suicidal elderly is that their hearts are heavy,

not merry, and their cheerful expression may cover up an inner despair.

Laughter offers one answer. As Gorden once said, "The neurotic who learns to laugh at himself may be on the way to cure"⁽²⁷⁾. Experiences with elderly patients also propose that the suicidal person who can laugh at himself or herself, may be on the way to self-acceptance, perhaps to the acceptance of life. Humour, therefore, may save a life if the person is suicidal. For those who are not suicidal, humour will make life richer and more significant

Goldstein, noted that there is "relatively little hard evidence covering the effect of laughter and humour"⁽²⁸⁾. The elderly have been mainly abandoned. To learn about the life-saving effects of a sense of humour, one must turn to the great literary figures rather than the professional literature. For example, Dickens wrote a little fantasy in *Nicholas Nickleby*, about a baron who was in a state of complete hopelessness and despondency. He was visited one night by a demon, who introduced himself as "the Genius of Despair and Suicide," and who encouraged the man to kill himself. At one point, however, the baron began to laugh. His laughter caused the "Spirit of suicide" to disappear. I suspect that this story, inserted almost irrelevantly into the novel, was a symbolically autobiographical statement by Dickens.

Humour is a function of the treatment approach of the therapist. For example, it is interpretable in psychoanalytic therapy, and based upon reinforcement, guided imagery, and other behavioural methods in behaviour therapy. As Goodchilds said, "humour is a phenomenon pre-eminently interactive, imminent, impromptu"⁽²⁸⁾. This is why roughly half the humour originated with the patient and half with the therapist.

Elderly clients are usually responsive to humour during therapy, and become more active contributors in the treatment process. Humour may have permitted many of them to survive as long as they did. The therapeutic and lifesaving function of humour may be particularly true of the elderly due to their gift for storytelling⁽³⁰⁾. Storytelling is the basis of the life review⁽³¹⁾, and of humour.

The dissimilarity between laughing with and laughing at is a valid one. A good rule of thumb for the therapist is when in doubt, don't. Many patients can feel put down by humour and believe that they are the objects of condemnation and rejection. The vigilance by Kubie⁽³²⁾ and others regarding the dangers and possible negative results of the use of humour in therapy are well taken. It is critical to remember that the elderly in a state of hopelessness and despair may be down but not out. Humour reflects a positive view towards life, designed to replace disgust and despair by ego integrity and affirmation⁽³³⁾.

Research Studies

The humour phenomena within older adults merits further investigation. To date, very few studies have examined humour and the older adult. A pilot study was conducted to determine the effect of humour on the recovery rate of elderly patients following inpatient cataract surgery. A sample of 20 subjects was selected to rate 15 jokes for degree of funniness. The results indicated that men rated the jokes funnier than women. Furthermore, a positive relationship existed between

the length of hospital stay and humour scores for males but not for the females⁽³⁴⁾. (Abdul - this is because women have a totally different sense of humour! to men, - that is a learned comment as I do television comedy shows)

A study designed to investigate adaptation to physical disability⁽³⁵⁾ investigated 30 disabled persons ranging in age from 18 to 78 years. Subjects were shown two disability-relevant cartoons and observed for their reactions. Results indicated that subjects who laugh at these cartoons were better functioning individuals; that is, they demonstrated much vitality and higher self-concept. The subjects with a higher degree of humour also had the disability for a longer time; therefore, more experience with disability played an important role in coping with it.

A program of humorous activity was started to explore the association between the activity and subjective well-being of senior adults⁽³⁶⁾. Using a quasi-experimental, pre post test design, one group (N=30) of senior adults were involved in a program of humorous activity, while another group (N=30) of seniors served as a control group, of six weeks. The results indicated that mood levels increased markedly in association with group activity and especially with humorous activity. With the above finding, which were supported by qualitative findings, a connection between humorous activity and subjective well-being was found, lending support to the value of the humour program.

Nursing Implications

There are implications for nursing practice with elderly clients who are in both community and institutionalized settings. In both settings, there are several means where humour may be incorporated into structured activities. For example, videotapes of old comedies such as the *Keystone Cops* and the *Marx Brothers* may be seen as well as modern comedies. Other people, such as comedians and clowns from local college music and theatre departments, may be invited to perform humorous skits. In addition, old radio programs such as those of *George Burns* and *Gracie Allen* may be heard in groups. This encourages communication among older adults to remember the past and includes individuals who may be visually impaired.

Another method to advance humour and play, is to coordinate adult non-competitive games as illustrated by Weinstein and Goodman⁽³⁷⁾. These authors encourage non-competitive play as a way to have fun and provide a sense of community among participants. They have discovered that adults are usually open to have fun but sometimes wait for "permission" in order to do so. The elements that are incorporated into the non-competitive games include the following: humour, collaboration, positive action, inclusiveness, imagination and openness, equality, individuality, sense of challenge and fun. For example, "birthdays" is a game in which people assemble in groups according to the month of their birthdays. Each group has a minute to acquire a group cheer for their month. Starting with January, each group will do its cheer and sit down until December is completed and then all the groups will give themselves a standing evaluation. Thus this game encourages group spirit, positive feelings, and entertainment.

Humour also may be started by the older adult. Humour is perceived by multiple authors as a health-promotion activity based on the research that supports its physiological and psychological benefits^(11,12,18). Humour as a positive behaviour then may be promoted by the nurse to reduce stress and increase positive feelings. Awareness of humour and humorous situations in the environment should be encouraged. Older clients need to identify what humorous communications (joke books, cartoons, movies, etc.) and situations work for them. Once older clients know what situations yield laughter, clients then are able to have some command and are able to provide a “laugh a day.”

Nurses need to also consider humour as a conversation tool with clients. Similar to other interventions, humour needs to be assessed as suitable to the client and the situation. Humour as stated by the nurse may attest to the client understanding due to a similar experience or a mutual bafflement. In this way, humour helps to put stressful situations into perspective. Therefore, the nurse should not be apprehensive to let the playful and cheerful dimensions of his/her personality come out. In this sense, the nurse is truly implementing the “therapeutic use of self“ clients.

While there are many positive aspects connected with humour, negative forms of humour also exist. When considering the suitability of humour, the factors of timing, receptiveness, and content should be assessed⁽³⁸⁾ For example, when anxiety and stress is strong, humour will not be appropriate until the crisis subsides. It is also important to individualize the types of humour in interactions with others and to set the degree to which the individual values or appreciates humour.

Lastly, it is crucial to contemplate the content of the humour. Humour is destructive if practiced in a way that ridicules people. Sensitivity to the client’s values and problems is important in order to not insult inadvertently. Therefore, the nurse must be certain not to laugh at clients, but with them.

Conclusion

There are several physiological and psychological benefits to clients in humour, and is seen as an important refinement by older adults. Based on research and other scholarly views, humour is a suitable method to encourage with older adults in both community and long-term care settings. Nurses need to think about humour as a communication tool to decrease tension and demolish barriers between nurses and older clients.

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Getting to Know The Scatter Plot

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ABSTRACT

The first and foremost important step in the data analyses process is to display data using graphical methods. Where two features in a study can be measured accurately, a visual presentation such as a scatter plot may indicate an interesting relationship, if it does not seem random. This helps researchers to understand the relation between different variables in a particular dataset. It also aids investigators to make the appropriate decision about how to further analyze the data by applying the most suitable statistical models. The chief aim of the present article therefore, is to examine one of the most powerful graphical diagrams for data visualization i.e. a scatter plot using a real public health dataset.

Key words: Accurate measurement, Scatter plot, Correlation coefficient, Data visualization

Introduction

It has been discussed that health care professionals including family physicians are increasingly becoming involved in public health data analyses and as a result they should be familiar with the different approaches of data analyses^(1,2). The first and foremost important step in data analyses process is to display data using graphical tools^(3,4). This helps researchers to understand the relation between different variables in a particular dataset. It also aids investigators to make the appropriate decision about how to further analyze the data by applying the most suitable statistical models⁽⁵⁾.

Maps and box plots are among the best known graphical tools to display public health data^(1,6). For instance, it has been documented that maps reveal the spatial relationships, which might not be seen in corresponding tables⁽⁷⁾. There are also other important graphical tools to display public health data such as scatter plot, which may exhibit patterns that cannot be expressed easily in writing. The chief aim of the present article therefore, is to examine this powerful method for data visualization using a real public health dataset.

Scatter Plot

One of the most powerful graphical methods, especially for describing the relationship between two continuous variables, is the scatter plot⁽⁸⁾. To create this graph the value of the dependent variable is plotted in the Y axis, whilst the value of the independent variable is plotted in the X axis⁽⁹⁾. As a result, this graph displays each pair of data values using (x, y) coordinates in a plane⁽⁸⁾.

The shape of this plot, which is used to describe the relationship between the two variables, has two elements. These two elements are related to its position and variability. The position might be measured as a line or a curve that runs through the bulk of the data, and the variability might be measured in terms of deviation of (x, y) points from the curve⁽⁸⁾.

These functions would help researchers to detect any relation that might exist between two variables. They also aid investigators to make the appropriate decision about how to further analyze data by applying the most suitable statistical models. For instance, if the relation between two variables emerges to be a linear one, then a linear regression model would be applied to further analyse the data⁽⁹⁾.

Sometimes we may also need to supplement the scatter plot by calculating a statistic known as the correlation coefficient, which is usually denoted by $r^{(10)}$. This coefficient quantifies both the direction and the strength of the observed relationship and it can take any value between +1 and - 1. A positive value indicates that the two variables tend to be either large or small together and a negative sign implies that one variable takes large values when the other is small, and vice versa. A value near to zero implies that there is no linear relationship between the two variables⁽¹⁰⁾.

Public Health Dataset

The data comes from a cross sectional study that was performed during September to October 2005, on 606 Afghani pupils aged 6-14 years within Shahriar County of Tehran, province of Iran. The sample size included 312 (56.1%) boys

and 284 (46.9%) girls who were originally recruited in order to determine their nutritional status.

Among variables under study there were two continuous variables i.e. height and the weight of the pupils, which were measured with the minimum clothes and no shoes. Weights of the pupils were measured by an accurately calibrated Seca digital scale, with an accepted error of 0.1 kg and their heights by a stadio-meter with an accepted error of 0.1 cm.

Let us imagine that the researchers who conducted the above study are keen to determine the relation between the heights and the weights of the pupils. In other words they would like to know to what extent, by increasing the heights of the students, their weights are increased.

To answer this question, Diagram 1, which is a scatter graph, is produced. In this graph the height of the pupils (i.e. independent variable) are shown on the X axis and the weight of the pupils (i.e. dependent variable) on the Y axis. As the diagram depicts a linear line runs through the bulk of the data and the correlation coefficient ($r=0.8$) indicates that there is a positive strong relationship between these two variables. This implies that by increasing the heights of the pupils their weights are also increased to a large extent. As the graph depicts whilst most observations are gathered relatively around the linear line there are also some outliers. For instance, case number 490 who is a 16 year old boy with 176 cm height and 70 kg weight and case number 399 who is an 11 year old girl with 133 cm height and 17 kg weight are clearly two outliers.

Since other variables such as gender may confound the relationship between height and weight, two separate scatter plots were produced for boys (Diagram 2) and girls (Diagram 3), respectively. Both diagrams highlight that there is also a positive strong relationship between these two variables in both sexes. However, as Diagram 2 depicts, more observations are gathered relatively around the linear line in comparison to Diagram 3. Furthermore, based on the values of the correlation coefficients it is also evident that this relationship is relatively stronger among boys ($r=0.81$) compared with girls ($r=0.79$).

Conclusion

Scatter plot is among the most powerful graphical methods which examine the relationship between two continuous variables in terms of position and variability. Therefore, the use of this plot in the early stages of data analyses i.e. data visualization is strongly recommended(8-10).

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Diagram 1. Scatter plot depicting the relation between height and weight of 606 Afghani pupils aged 6-14 years

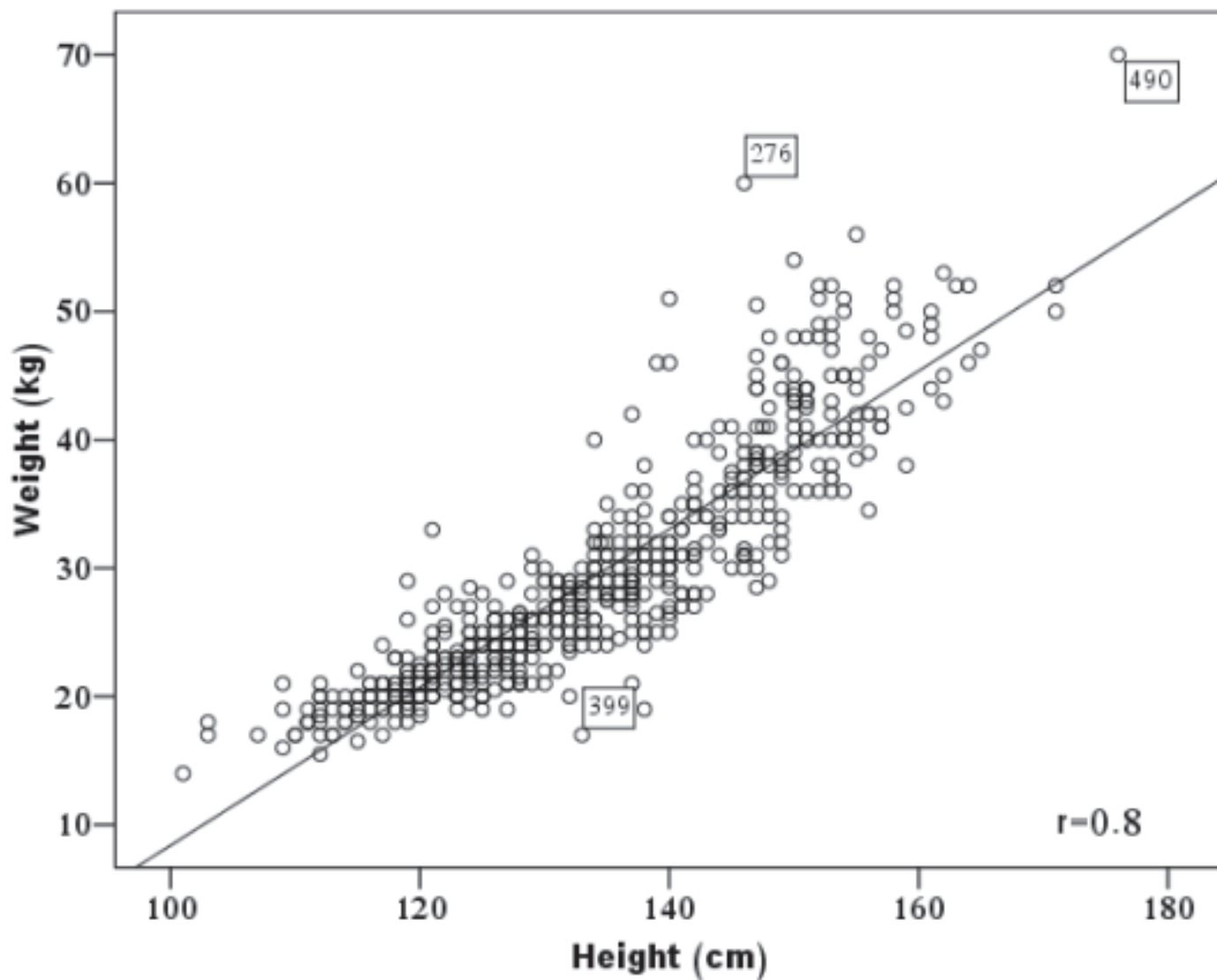


Diagram 2. Scatter plot depicting the relation between height and weight of 312 boys Afghani pupils aged 6-14 years

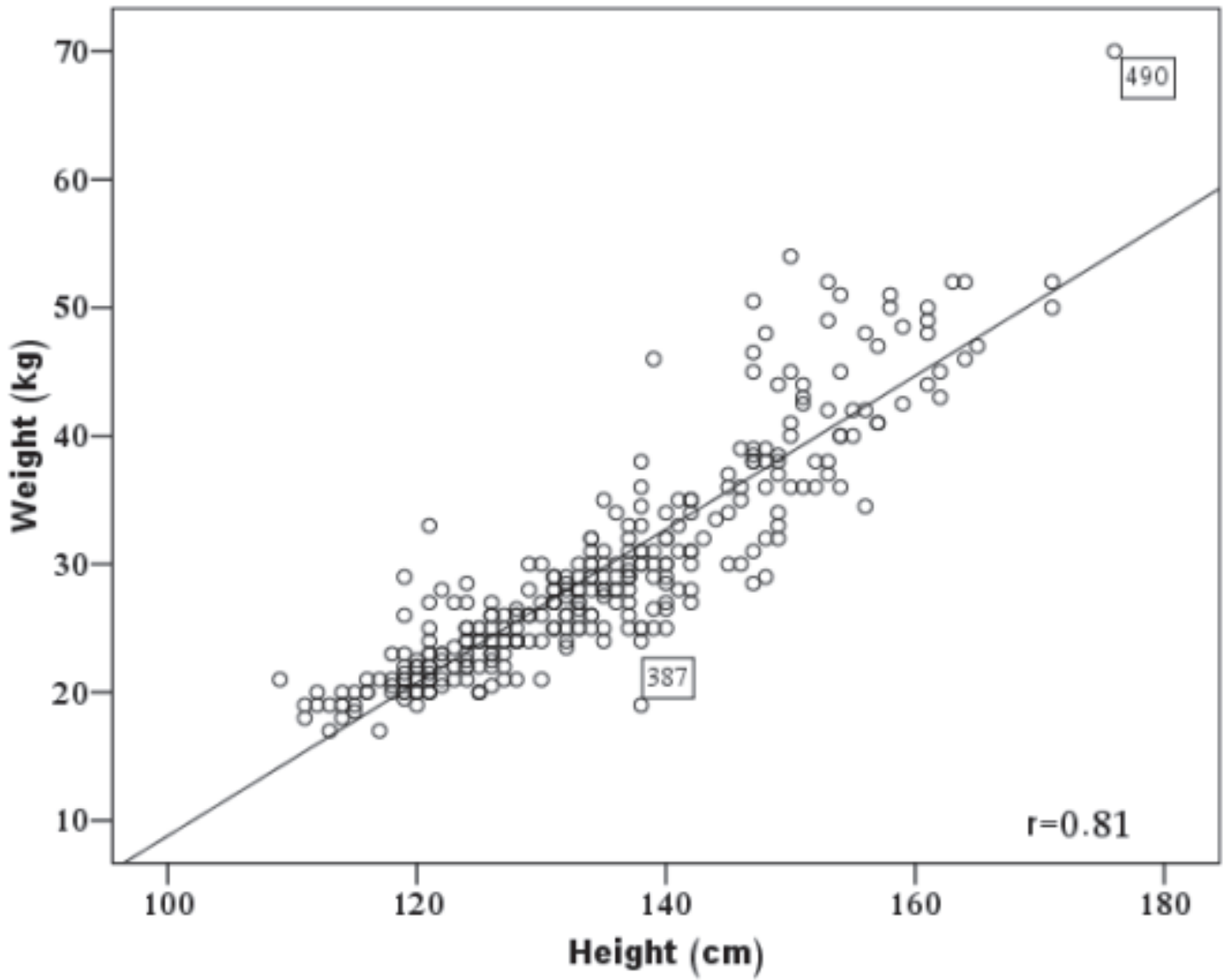


Diagram 3. Scatter plot depicting the relation between height and weight of 284 girls Afghani pupils aged 6-14 years

