

**PENGETAHUAN DAN KEMAMPUAN MASYARAKAT
DALAM MELAKUKAN RESUSITASI JANTUNG
PARU (RJP) PADA KASUS HENTI JANTUNG
DI LUAR RUMAH SAKIT**

LITERATURE REVIEW

SKRIPSI



**Oleh:
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NIM : 18010155**

**PROGRAM STUDI ILMU KEPERAWATAN
FAKULTAS ILMU KESEHATAN
UNIVERSITAS dr.SOE BANDI JEMBER
2022**

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Untuk Memenuhi Persyaratan

Memperoleh Gelar Sarjana Ilmu Keperawatan (S.Kep)



Oleh:
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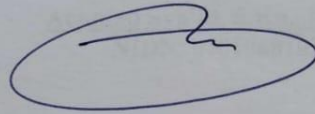
**PROGRAM STUDI ILMU KEPERAWATAN
FAKULTAS ILMU KESEHATAN
UNIVERSITAS dr.SOEABANDI JEMBER
2022**

HALAMAN PERSETUJUAN

Skripsi ini telah diperiksa oleh pembimbing dan telah disetujui untuk mengikuti sidang skripsi pada Program Studi Ilmu Keperawatan Universitas dr. Soebandi Jember.

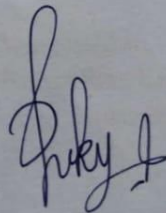
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Skripsi yang berjudul pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit *literatur riview* telah diuji dan disahkan oleh pada :

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4. Almamater Universitas dr. Soebandi Jember.
5. Seluruh teman-teman seangkatan, khususnya Ilmu Keperawatan 18D

PERNYATAAN ORISINALITAS SKRIPSI

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Menyatakan dengan sesungguhnya bahwa skripsi yang saya tulis ini benar-benar merupakan hasil karya saya sendiri dan bukan merupakan hasil tulisan orang lain. Apabila di kemudian hari terbukti atau dapat dibuktikan bahwa sebagian atau keseluruhan skripsi ini ditemukan adanya pelanggaran terhadap etika keilmuan dalam skripsi ini, maka saya bersedia menerima sanksi atas perbuatan tersebut. Demikian pernyataan ini saya buat dengan sebenar-benarnya.

Jember, 4 Juli 2022

Yang menyatakan


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NIM : 18010155

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SKRIPSI

LITERATUR RIVIEW

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MOTTO

"Bahagia itu sangat sederhana, hanya perlu mensyukuri nikmat yang telah Allah berikan dan berpikir positif, tidak peduli seberapa keras kehidupanmu saat ini"

(Ali bin Abi Thalib)

ABSTRAK

Yani, N. I., Ekaprasetia, F., & Nastiti, E. M. (2022). *Pengetahuan dan Kemampuan Masyarakat dalam melakukan Resusitasi Jantung Paru (RJP) pada Kasus Henti Jantung Di Luar Rumah Sakit*. Skripsi, Ketua Program Studi Ilmu Keperawatan Fakultas Ilmu Kesehatan Universitas dr. Soebandi Jember.

Pendahuluan: Kejadian henti jantung diluar rumah sakit disebut juga *out-of-hospital cardiac arrest* (OHCA) yang membutuhkan pertolongan dengan cepat dan tepat. Pengetahuan masyarakat tentang resusitasi jantung paru (RJP) sangat penting, rendahnya tingkat pengetahuan akan mempengaruhi kemampuan masyarakat dalam melakukan RJP dan hal ini akan berpengaruh pada angka henti jantung yang sangat tinggi. Tujuan penelitian ini adalah untuk menganalisis hubungan pengetahuan pertolongan henti jantung terhadap kemampuan masyarakat dalam melakukan RJP di luar rumah sakit.

Metode: Penelitian ini menggunakan pendekatan *literatur review* dengan tiga database yaitu *Google Scholar*, *PubMed*, dan *Proquest* dengan sejumlah delapan artikel yang diterbitkan dari tahun 2017 sampai 2021 sejumlah 440 artikel yang kemudian dilakukan seleksi menggunakan kriteria *PICOS framework*. Setelah dilakukan *review* diperoleh delapan artikel yang sesuai dengan topik.

Hasil: Hasil penelitian menunjukkan bahwa pengetahuan dan kemampuan RJP dari delapan artikel yang direview menunjukkan hasil yang sama yaitu pengetahuan dapat meningkatkan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit.

Kesimpulan: Disarankan bagi responden untuk meningkatkan pengetahuan dan kemampuan tentang resusitasi jantung paru pada kasus henti jantung di luar rumah sakit, untuk menurunkan angka kematian di masyarakat luas, dengan cara melakukan pelatihan tentang tindakan resusitasi jantung paru (RJP).

Kata Kunci : Henti Jantung, Resusitasi Jantung Paru, OHCA

* Peneliti

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***Pembimbing II

ABSTRACT

Yani, N. I., Ekaprasetya, F., & Nastiti, E. M. (2022). *Knowledge And Ability Of The Community In cardiopulmonary resuscitation (CPR) In Case Of Cardiac Arrest Outside The Hospital*. Thesis, Head of Nursing Study Program, Faculty of Health Sciences, University dr. Soebandi Jember.

Introduction: Cardiac arrest outside the hospital is also called out-of-hospital cardiac arrest (OHCA) which requires prompt and appropriate help. Public knowledge about cardiopulmonary resuscitation (CPR) is very important, the low level of knowledge will affect the community's ability to perform CPR and this will affect the very high rate of cardiac arrest. The purpose of this study was to analyze the relationship between knowledge of cardiac arrest assistance and the community's ability to perform CPR outside the hospital.

Methods: This study uses a literature review approach with three databases, namely Google Scholar, PubMed, and Proquest with a total of eight articles published from 2017 to 2021 with a total of 440 articles which were then selected using the PICOS framework criteria. After the review was done, eight articles were obtained that were in accordance with the topic.

Results: Results: The results showed that the knowledge and ability of CPR from the eight articles reviewed showed the same result, namely that knowledge could increase the community's ability to perform cardiopulmonary resuscitation (CPR) in cases of cardiac arrest outside the hospital.

Conclusion: It is recommended for respondents to increase their knowledge and ability about cardiopulmonary resuscitation in cases of cardiac arrest outside the hospital, to reduce mortality in the wider community, by conducting training on cardiopulmonary resuscitation (CPR).

Keywords: Cardiac Arrest, Cardiopulmonary Resuscitation, OHCA

* Researcher

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*** Advisor II

KATA PENGANTAR

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DAFTAR SINGKATAN

OHCA	= <i>Out of Hospital Cardiac Arrest</i>
IHCA	= <i>In Hospital Cardiac Arrest</i>
AHA	= <i>American Heart Association</i>
CPR	= <i>Cardio Pulmonary Resuscitation</i>
EMS	= <i>Emergency Medical Service</i>
AED	= <i>Automated External Defibrillator</i>
RJP	= Resusitasi Jantung Paru

BAB 1

PENDAHULUAN

1.1 Latar Belakang

Permasalahan yang terjadi dalam dunia kesehatan saat ini yaitu kematian yang terjadi di luar rumah sakit akibat henti jantung (Ahsan, Rachmawati, & Firman, 2020). Henti jantung merupakan hilangnya fungsi jantung secara tiba-tiba pada orang yang sudah atau belum pernah didiagnosis menderita penyakit jantung. Henti jantung berakibat fatal jika tidak segera ditangani atau diatasi (AHA, 2021). Henti jantung mendadak menyebabkan aliran darah ke otak dan organ lain terhenti, sehingga penderita henti jantung bisa tiba-tiba pingsan, hilangnya kesadaran, nadi tidak teraba dan tidak ada nafas (Steinbaum S. , 2019). Pengetahuan masyarakat tentang RJP sangat penting, rendahnya tingkat pengetahuan akan mempengaruhi kemampuan masyarakat dalam melakukan RJP dan menyebabkan angka kematian korban henti jantung sangat tinggi (Alhussein, et al., 2021). Penyakit jantung masih menjadi ancaman dunia dan menjadi penyebab kematian nomor satu di dunia. Henti jantung merupakan kegawatdaruratan yang sering terjadi di dalam rumah sakit maupun di luar rumah sakit (Wibawa, 2021).

Kejadian henti jantung diluar rumah sakit disebut juga *Out-of-hospital Cardiac Arrest* (OHCA) yang membutuhkan pertolongan dengan cepat dan tepat. Angka kejadian OHCA sangat tinggi, sekitar 80% terjadi di rumah dan 20% terjadi di tempat umum (Muniarti & Herlina, 2019). Kejadian penyakit jantung dan pembuluh darah semakin meningkat setiap tahun. Menurut data

dari *American Heart Association* (2021) lebih dari 356.000 orang yang mengalami henti jantung di luar rumah sakit setiap tahun yang terjadi di Amerika Serikat.

Kasus henti jantung kematian mendadak terjadi karena gangguan dari kelistrikan jantung yang menghasilkan irama yang tidak normal atau aritmia. Aritmia umum yang terkait dengan henti jantung pada fibrilasi ventrikel. Pada fibrilasi ventrikel, bilik jantung bagian bawah tiba-tiba mulai berhenti memompa darah. Sehingga jantung berhenti memompa. Akibatnya ketika jantung berhenti berdetak, tidak akan ada aliran darah yang mengalir ke otak. Jika aliran darah tidak ada oksigen tidak dapat dialirkan ke seluruh tubuh. Kerusakan otak mungkin terjadi jika henti jantung dalam empat sampai enam menit jika tidak segera ditangani (AHA, 2021).

Pertolongan pertama pada pasien dengan henti jantung yaitu dengan melakukan resusitasi jantung paru (RJP). Resusitasi jantung paru adalah serangkaian tindakan penyelamatan korban yang meningkatkan kemungkinan peluang kelangsungan hidup setelah henti jantung. Resusitasi jantung paru dapat menjaga agar aliran darah ke otak tetap aktif. Jika korban tidak segera mendapatkan tindakan resusitasi jantung paru maka dapat menurunkan kesempatan hidup pada korban henti jantung (Sentana, 2018). Setelah dilakukan resusitasi jantung paru pasien henti jantung berhasil hidup kembali sebesar 37%. (FKUI, 2019). Meskipun tingkat kelangsungan hidup pasien henti jantung sangat rendah, ketika korban OHCA menerima RJP langsung

dari masyarakat tingkat kelangsungan hidup jauh lebih tinggi sambil menunggu tim medis tiba (Darwati & Setianingsih, 2020).

Penelitian sebelumnya mengatakan bahwa tingkat kelangsungan hidup korban OCHA masih rendah disebabkan karena kurangnya kemampuan masyarakat dalam melakukan RJP pada korban yang mengalami henti jantung, sehingga angka kematian korban henti jantung sangat tinggi. Hal itu disebabkan karena kurangnya pengetahuan yang dimiliki masyarakat tentang cara melakukan resusitasi jantung paru (Kusumawati & Jaya, 2019). Penelitian lain mengatakan bahwa kurangnya pengetahuan tentang cara melakukan RJP dapat berdampak pada kelangsungan hidup korban henti jantung, sehingga kelangsungan hidup pada korban henti jantung meningkat (Faqih & Karyo, 2021).

Data diatas menunjukkan bahwa banyak korban henti jantung yang meninggal ditempat kejadian yang biasanya disebabkan karena tidak segera dilakukan tindakan resusitasi jantung paru dan biasanya diakibatkan karena kurangnya pengetahuan masyarakat mengenai tindakan resusitasi jantung paru pada korban henti jantung (Darwati & Setianingsih, 2020). Pengetahuan dan kemampuan resusitasi jantung paru menjadi penting karena didalamnya diajarkan tentang teknik dasar penyelamatan korban henti jantung dari berbagai masalah sehari-hari yang sering kita jumpai. Penyebab utama rendahnya kelangsungan hidup pada korban OCHA yaitu terlambatnya pemberian tindakan resusitasi jantung paru serta penolong tidak paham dengan prosedur tindakan apa yang akan dilakukan terlebih dahulu.

Kemampuan melakukan resusitasi jantung paru harus dimiliki setiap orang untuk mengurangi dampak buruk pada pasien henti jantung (Sentana, 2018).

Berdasarkan uraian diatas, peneliti akan melakukan analisa *literature review* yang bertujuan untuk menjelaskan tentang hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit.

1.2 Rumusan Masalah

Berdasarkan latar belakang diatas rumusan masalah pada *literature review* ini sebagai berikut : bagaimana hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit

1.3 Tujuan Penelitian

1.3.1 Tujuan umum

Tujuan umum pada *literature review* ini adalah : menganalisa hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit

1.3.2 Tujuan khusus

1. Mengidentifikasi pengetahuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit.
2. Mengidentifikasi kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit
3. Mengidentifikasi hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit

1.4 Manfaat Penelitian

1. Bagi Peneliti

Menambah wawasan tentang pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit

2. Bagi Masyarakat

Literature review ini diharapkan dapat memberikan wawasan kepada masyarakat tentang pentingnya pengetahuan dalam melakukan RJP pada kasus henti jantung di luar rumah sakit.

3. Bagi Tenaga Kesehatan/profesi keperawatan

Literature review ini dapat dijadikan referensi bagi pelayanan kesehatan khususnya para kader kesehatan untuk memberikan pengetahuan tentang cara melakukan pertolongan pertama pada kasus henti jantung di luar rumah sakit.

4. Bagi Institusi Pendidikan

Literature review ini dapat dijadikan bahan dalam menyusun penelitian bagi instansi pendidikan khususnya Universitas dr. Soebandi Jember untuk lebih memahami tentang pengetahuan hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit

BAB 2

TINJAUAN PUSTAKA

2.1 Konsep Pengetahuan

2.1.1 Definisi Pengetahuan

Pengetahuan (*knowledge*) merupakan hasil informasi dari manusia yang saling bekerja sama dengan subjek dan objek yang telah diketahui (Hendrawan, 2019). Pengetahuan didefinisikan sebagai hasil penginderaan manusia terhadap objek yang telah diamati melalui proses hubungan antara pengetahuan, sikap dan tindakan (Pakpahan, et al., 2020). Pengetahuan bersifat logis, terurai secara sistematis dan menyeluruh, sehingga pengetahuan menjadi fakta yang akan mendukung tindakan seseorang untuk menumbuhkan rasa percaya diri (Masturoh & Anggita T, 2018). Dari beberapa pengertian di atas, penulis menyimpulkan bahwa pengetahuan merupakan tindakan seseorang yang diperoleh dari panca indra untuk menumbuhkan rasa percaya diri terhadap perilaku dan sikap.

2.1.2 Tingkat Pengetahuan

Ada enam tingkatan pengetahuan, sebagai berikut (Masturoh & Anggita T, 2018) :

1) Pengetahuan (*knowledge*)

Tahu dapat diartikan sebagai kenangan atau pengalaman karena seseorang dituntut untuk memahami fakta yang ada dan mengingat kembali yang telah dipelajari sebelumnya.

2) Pemahaman (*comprehension*)

Dalam pemahaman ini seseorang harus memahami suatu objek, bukan hanya sekedar tahu dan mampu menyebutkannya, tapi juga mampu menginterpretasikan secara benar tentang objek yang telah diketahui.

3) Penerapan (*application*)

Ketika orang sudah memahami suatu objek seseorang harus dapat menerapkan materi yang sudah dipelajari.

4) Analisis (*analysis*)

Analisis merupakan kemampuan seseorang untuk menjabarkan, membandingkan dan menemukan hubungan antara komponen-komponen yang terdapat dalam suatu objek.

5) Sintesis (*synthesis*)

Sintesis merupakan suatu kemampuan seseorang untuk meringkas suatu hubungan yang logis dari komponen-komponen pengetahuan yang sudah dimiliki oleh seseorang untuk menjadi suatu pola yang baru secara menyeluruh.

6) Penilaian (*evaluation*)

Penilaian yaitu kemampuan seseorang untuk menilai suatu objek tertentu yang didasarkan pada suatu norma-norma yang berlaku di masyarakat.

2.1.3 Faktor-faktor yang Mempengaruhi Pengetahuan

Faktor-faktor yang mempengaruhi pengetahuan adalah sebagai berikut (Hendrawan, 2019) :

1) Pendidikan

Semakin tinggi jenjang pendidikan yang diperoleh seseorang maka semakin mudah masyarakat menerima informasi. Pengetahuan tambahan dapat diperoleh dari pendidikan formal dan nonformal. Ada dua aspek pengetahuan seseorang tentang suatu objek, aspek positif dan aspek negatif. Kedua aspek ini menentukan sikap seseorang terhadap objek yang ditemukan.

2) Sumber informasi

Semakin banyak indera yang digunakan untuk menerima sesuatu, akan semakin semakin jelas juga pengetahuan yang akan diperoleh.

3) Sosial, Budaya dan Ekonomi

Kebiasaan yang dilakukan seseorang setiap harinya akan mempengaruhi persepsi terhadap sesuatu yang ada disekitarnya.

4) Lingkungan

Lingkungan berpengaruh terhadap proses masuknya pengetahuan ke dalam individu masing-masing. Lingkungan dapat mempengaruhi dampak positif dan negatif seseorang. Hal tersebut terjadi karena adanya interaksi timbal balik yang direspon setiap orang.

5) Pengalaman

Pengetahuan dapat diperoleh dari diri sendiri ataupun orang lain. Semakin banyak pengalaman seseorang, maka semakin banyak juga pengetahuan yang dimilikinya.

6) Usia

Semakin bertambahnya usia pola pikir seseorang akan semakin berkembang, sehingga usia mempengaruhi pola pikir seseorang dalam memperoleh pengetahuan

2.1.4 Cara Mengukur Pengetahuan

Pengukuran pengetahuan dapat dilakukan dengan wawancara, wawancara merupakan metode untuk memperoleh data yang dilakukan secara lisan. Selain itu untuk mendapatkan data tindakan seseorang melalui observasi, pendekatan ini untuk mengingat kembali tindakan yang telah dilakukan sebelumnya (Zulmiyetri, Safaruddin, & Nurhastuti, 2020).

Pengukuran pengetahuan seseorang dapat dikategorikan sebagai berikut (Budiman & Riyanto, 2013) :

1. Tingkat pengetahuan dikatakan baik jika responden mampu menjawab pertanyaan yang benar $> 75\%$.
2. Tingkat pengetahuan dikatakan cukup jika responden mampu menjawab pertanyaan yang benar $54-74\%$.
3. Tingkat pengetahuan dikatakan kurang jika responden mampu menjawab pertanyaan yang benar $< 55\%$.

2.2 Konsep Teori Kemampuan

2.2.1 Pengertian Kemampuan

Kemampuan (*ability*) adalah kualitas seseorang untuk melakukan suatu pekerjaan. Selain itu, kemampuan dapat bersifat kognitif atau berupa pengetahuan. Misalnya kemampuan melakukan RJP hanya dapat dilakukan orang pada umumnya, tapi kemampuan ini dapat diperoleh dari pengetahuan. Kemampuan merupakan sudah ada dalam diri kita sejak lahir. Kemampuan ini disebut juga potensi. Potensi pada dasarnya bisa dikembangkan oleh seseorang (Hansen, et al., 2020). Dari pengertian di atas peneliti menyimpulkan bahwa kemampuan merupakan potensi setiap individu untuk menyelesaikan pekerjaannya dan dapat dilihat dari tindakan dari masing-masing individu.

Kemampuan seorang individu pada dasarnya terdiri atas dua kelompok, yaitu (Rohman, 2018) :

- 1) Kemampuan Intelektual (*Intellectual Ability*), merupakan kemampuan yang dibutuhkan untuk melakukan berbagai aktivitas mental (berfikir, menalar dan memecahkan masalah).
- 2) Kemampuan Fisik (*Physical Ability*), merupakan kemampuan melakukan tugas-tugas yang menuntut ketrampilan dan kekuatan.

2.2.2 Faktor-faktor yang Mempengaruhi Kemampuan

Faktor-faktor yang mempengaruhi kemampuan individu (Rohman, 2018):

1) Pengetahuan dan pelatihan

Dalam pelatihan harus untuk memahami setiap tahapan yang berkaitan dengan cara menyelesaikan masalah, seseorang tidak dapat berasumsi bahwa seseorang yang mengikuti pelatihan dapat melakukan sesuatu tanpa mempunyai pengetahuan.

2) Gizi dan kesehatan

Bagi seseorang sangat penting untuk memperhatikan Nutrisi dan kesehatannya. Semakin baik status nutrisi dan kesehatan seseorang semakin efisien pekerjaannya.

2.2.3 Cara Mengukur Kemampuan

Mengukur kemampuan merupakan evaluasi kemampuan individu ketika menjalankan sebuah keahlian. Bisa berupa evaluasi keahlian secara spesifik mengenai dalam sebuah pekerjaan. Pengukuran ini dapat mengetahui tingkat keahlian dari setiap kemampuan yang dimiliki. Mendapatkan data dari kemampuan fisik seseorang dapat dilakukan dengan observasi dari setiap tindakan dan pekerjaan yang dilakukan seseorang. Untuk mendapatkan data dari kemampuan intelektual dapat dilakukan tes IQ, tes ini digunakan untuk mengukur aktivitas mental seseorang (Saputra, 2018).

Ada beberapa hal yang perlu dikaji ketika menjalankan tes IQ (Saputra, 2018) :

- 1) Kecerdasan numerik merupakan kemampuan untuk menghitung angka dengan cepat dan tepat.
- 2) Pemahaman verbal merupakan kemampuan memahami apa yang sudah dibaca dan didengar.
- 3) Kecepatan perseptual merupakan kemampuan mengenali kemiripan dari berbagai benda dan beda visual dengan cepat dan tepat.
- 4) Penalaran induktif merupakan kemampuan mengenali suatu urutan logis dalam suatu masalah yang kemudian dipecahkan.
- 5) Penalaran deduktif merupakan kemampuan penalaran menggunakan logika
- 6) Visualisasi ruang merupakan kemampuan membayangkan bagaimana suatu objek yang ada di suatu ruangan.
- 7) Ingatan merupakan kemampuan menahan dan mengenang kembali pengalaman masa lalu

Indikator dalam penilaian kemampuan (Rohman, 2018):

- 1) Keterampilan (skill)

Keterampilan individu dapat diperoleh dari bakat dan kepribadian yang dimiliki oleh masing-masing individu. Bentuk indikator keterampilan meliputi mampu menyelesaikan tugas tepat waktu, kreatif, inovatif, dan memiliki kemampuan untuk menguasai bidang tertentu.

2) Pengetahuan (knowledge)

Pengetahuan merupakan pengetahuan yang dimiliki sebagai hasil pendidikan, pengalaman, dan pelatihan di bidang kerjanya. Kemampuan seseorang dapat dilihat dari pengetahuan yang dimilikinya.

3) Pengalaman kerja (work experience)

Sebagian besar kita sebagai individu yang akan melakukan suatu pekerjaan kita akan mendapat pengalaman. Semakin banyak pengalaman maka akan semakin mahir juga kita melakukan suatu pekerjaan.

2.3 Konsep Henti Jantung

2.3.1 Pengertian Henti Jantung

Henti jantung merupakan hilangnya fungsi jantung secara tiba-tiba pada seseorang. Henti jantung akan berakibat fatal apabila tidak segera ditangani (AHA, 2021). Henti jantung menyebabkan terhentinya aliran darah ke otak dan organ lain, sehingga orang dengan henti jantung mungkin tiba-tiba pingsan, hilangnya kesadaran, nadi tidak teraba, dan tidak ada nafas (Steinbaum S. , 2019).

Identifikasi henti jantung bergantung pada ditemukannya tanda-tanda kurangnya sirkulasi yang ditandai dengan henti napas 15-30 detik, kulit pucat, pupil melebar dan tidak responsif selama 60-90 detik, ketidaksadaran 10-20 detik dan denyut nadi karotis tidak teraba adalah gejala utama henti jantung. Jika nadi karotis tidak teraba dan sirkulasi jantung berhenti, segera lakukan RJP dengan teknik CAB (Muttaqin, 2014).

2.3.2 Patofisiologi Henti Jantung

Kematian mendadak terjadi karena gangguan dari kelistrikan jantung yang menghasilkan irama tidak normal atau aritmia. Aritmia yang terkait dengan henti jantung adalah fibrilasi ventrikel. Pada fibrilasi ventrikel bilik jantung bagian bawah tiba-tiba berhenti memompa darah. Sehingga jantung berhenti memompa. Tidak ada aliran darah yang mengalir ke otak, ketika jantung berhenti berdetak, sehingga oksigen tidak dapat dialirkan ke seluruh tubuh. Jika henti jantung dalam empat sampai enam menit tidak segera ditangani maka terjadi kerusakan otak (AHA, 2021).

2.3.3 Manifestasi klinis henti jantung

Adapun tanda-tanda pasien mengalami henti jantung menurut *American Heart Association* (2021) adalah sebagai berikut :

- 1) Hilangnya respons secara tiba-tiba

Korban tidak merespon, bahkan jika Anda menepuk pundaknya atau bertanya apakah mereka baik-baik saja. Korban tidak bergerak, berbicara, berkedip atau bereaksi.

- 2) Tidak ada pernapasan normal

Korban tidak bernapas atau hanya terengah-engah.

2.3.4 Penatalaksanaan henti jantung

Mengenai alur penanganan pasien henti jantung yang disebut *chain of survival*, masing-masing rantai tersebut saling berhubungan dan tidak dapat dipisahkan. Rantai bertahan hidup ini terdiri dari dua tipe, yaitu *In Hospital Cardiac Arrest* (IHCA) dan *Out of Hospital Cardiac Arrest* (OHCA).

Prinsip penatalaksanaan henti jantung diluar rumah sakit atau disebut juga dengan *Out of Hospital Cardiac Arrest* (OHCA) dimulai dengan segera mengaktifkan *emergency response* atau sistem tanggap darurat, pemberian RJP yang berkualitas tinggi, melakukan defibrilasi, diberikan resusitasi lanjutan saat dirujuk kerumah sakit, jika pasien sudah normal diberikan perawatan pasca henti jantung dan tindakan pemulihan (AHA, 2021).

Menurut *American Heart Association* (AHA, 2021) tindakan RJP ini dapat disingkat teknik CAB pada prosedur CPR (*Cardio Pulmonary Resuscitation*) yaitu:

- 1) C (*Circulation*) : Mengadakan sirkulasi buatan dengan kompresi jantung paru.
- 2) A (*Airway*) : Menjaga jalan nafas tetap terbuka.
- 3) B (*Breathing*) : Ventilasi paru dan oksigenasi yang adekuat.

2.4 Konsep Resusitasi Jantung Paru

2.4.1 Pengertian Resusitasi Jantung Paru

Resusitasi jantung paru merupakan upaya untuk mencegah terjadinya henti jantung yang fatal dan meningkatkan kelangsungan hidup pada pasien henti jantung (Rini, et al., 2019). Jika tidak segera ditangani, pasien dengan kondisi henti jantung dapat mengalami kematian dalam waktu sekitar 4-6 menit (AHA, 2021). Resusitasi jantung paru merupakan salah satu penatalaksanaan untuk mengembalikan kemampuan nafas dan sirkulasi darah yang terhenti. Resusitasi jantung paru ini untuk mengganti posisi jantung dalam memompa darah. Tindakan ini perlu dilakukan secara cepat dan tepat (Rini, et al., 2019).

2.4.2 Pemberian RJP di Luar Rumah Sakit pada Masyarakat

Pemberian RJP di luar rumah sakit dilakukan oleh masyarakat sebagai *bystander*, *bystander* merupakan seseorang yang dekat dengan lokasi kejadian secara sukarela untuk membantu dan menyelamatkan nyawa seseorang supaya tidak terjadi cedera lebih lanjut (Christianingsih & Santiasari, 2021).

Orang awam menurut perannya dalam masyarakat dibedakan menjadi dua (Hermawan, 2019) :

1) Orang awam biasa

Masyarakat umum biasanya menjadi orang yang berada paling dekat dengan lokasi kejadian. Apabila kejadian terjadi di jalan raya maka yang pertama kali menemukan korban adalah pengendara kendaraan, pejalan kaki, anak sekolah, mahasiswa, pedagang disekitar lokasi, dll. Secara spontan sebagian dari mereka akan melakukan pertolongan terhadap korban berdasarkan dengan pengetahuan yang dimiliki.

2) Orang awam khusus

Orang awam khusus merupakan orang yang mempunyai tanggung jawab terhadap keamanan dan kenyamanan masyarakat di lingkungan, yang merupakan orang awam khusus yaitu TNI/POLRI, Pemadam Kebakaran, Satpol PP, Satuan Pengamanan (SATPAM), dan Tim SAR. Sesuai dengan tanggung jawabnya kepada masyarakat, orang awam khusus ini dilatih secara khusus untuk melakukan pertolongan kepada korban gawat darurat di lokasi kejadian.

Chain Of Survival Basic Life Support menurut (AHA, 2020)

OHCA antara lain:



Gambar 2.1 Rantai keselamatan pada korban

Sumber : (AHA, 2020)

Langkah Bantuan Hidup Dasar untuk Masyarakat Awam :

- 1) Minta seseorang untuk menghubungi rumah sakit terdekat. Jika sendirian langsung gunakan telepon gengam untuk memanggil ambulans.
- 2) Pastikan 3A (aman lingkungan, aman korban, aman diri) dan cek respon korban :
 - a. Jika tidak ada respon
 - b. Tidak bernapas
 - c. Lakukan pengecekan kesadaran dari pasien dengan menanyakan apakah baik-baik saja sambil menepuk pundak pasien. Bila tidak berespons tepuk pundak pasien dengan pelan dan ulangi lagi pertanyaannya. Bila pasien tidak berespons kemungkinan besar pasien mengalami penurunan kesadaran karena hipoksia. Apabila pasien merespon dan menjawab berarti jalan napas paten.

3) Lakukan CPR berkualitas tinggi.

Ketika korban tidak sadar dan tidak ada nafas maka segera lakukan CPR (*Cardio Pulmonary Resuscitation*) dengan 30 kali kompresi dan 2 kali hembusan nafas. Ada dua cara bagi penolong, yaitu (Muttaqin, 2014):

a. Metode dengan satu penolong

Penyelamatan dimulai dengan 30 kali kompresi dengan kecepatan 80-100x/menit diikuti dengan dua kali ventilasi, masing-masing hembusan berlangsung 1-1,5 detik, sehingga hembusan nafas kedua dimulai ketika klien sudah mengeluarkan seluruh udara sepenuhnya.

b. Metode Dua Penolong

Penyelamatan dimulai dengan dua kali hembusan nafas oleh penolong pertama, sementara penolong kedua segera memulai kompresi dada (80-100x/menit) jika denyut karotis tidak teraba, pada saat akhir dari kompresi kelima, penolong pertama memberikan hembusan nafas masing-masing tiupan selama 1-1,5 detik. Lanjutkan kompresi dada segera pada saat akhir hembusan nafas. Tidak perlu menunggu sampai terjadi ekspirasi. Jika klien diintubasi, ventilasi (12-16x/menit) dan kompresi dada (80-100x/menit), dilakukan tanpa tergantung masing-masing penolong. Untuk menjamin ventilasi alveolar secara adekuat, beberapa hembusan nafas yang harus dilakukan di antara kompresi dada.

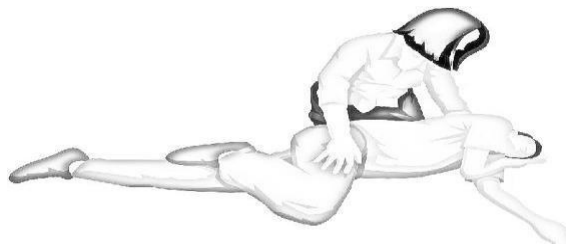


Gambar 2.2 Teknik Resusitasi Jantung Paru

Sumber : (Gosal, 2017)

- 3) Penolong harus melanjutkan RJP hanya kompresi hingga AED atau ambulan datang. Kemudian ketika ambulan datang siapkan AED (*Automated External Defibrillator*) segera. Pada anak RJP hanya menggunakan satu tangan, sedangkan untuk bayi hanya menggunakan jari telunjuk dan tengah. Pada bayi dan anak tekanan harus dilakukan di bagian tengah tulang dada karena *ventrikel* terletak lebih tinggi dalam rongga dada.
- 4) Lakukan resusitasi lanjutan
Perubahan yang dapat dikaji penolong adalah sebagai berikut (Muttaqin, 2014):
 - a. Pupil mengecil
 - b. Nadi karotis teraba. Jika nadi karotis masih tidak teraba dan tanda-tanda perfusi belum adekuat, maka titik kompresi pada dada harus diperiksa kembali, apakah pada titik yang benar atau tidak dan juga kekuatan kompresi dinaikkan.
- 5) RJP dihentikan jika (Muttaqin, 2014) :
 - a. Korban sadar dan bisa bernafas.
 - b. 30 menit tidak ada tanda kehidupan.
 - c. Ketika ambulan datang.

- d. Jika penolong lelah dan kondisi lingkungan tidak aman.
 - e. Telah terjadi kematian otak, dilihat dari dilatasi pupil selama 10-20 menit dan fungsi jantung tidak dapat dipulihkan kembali.
- 6) Langkah-langkah pemberian posisi pemuliahan, sebagai berikut (Hermawan, 2019) :
- a. Lengan yang dekat penolong diluruskan kearah kepala
 - b. Lengan yang satunya menyilang dada, kemudian tekankan tangan tersebut ke pipi korban.
 - c. Tangan penolong yang lain raih tungkai di atas lutut dan angkat.
 - d. Tarik tungkai hingga tubuh pasien terguling kearah penolong.
 - e. Baringkan miring dengan tungkai atas membentuk sudut dan menahan tubuh dengan stabil agar tidak menelungkup.
 - f. Periksa pernafasan terus-menerus.



Gambar 2.5 Posisi Pemulihan (*Recovery Position*)

Sumber : (Gosal, 2017)

2.4.3 Faktor-Faktor Yang Mempengaruhi Resusitasi Jantung Paru (RJP)

Faktor-faktor yang mempengaruhi pemberian kompresi dada atau RJP adalah sebagai berikut (Rini, et al., 2019) :

1) Usia

Kelompok usia dibawah 35 tahun lebih berpotensi mampu untuk melakukan RJP yang berkualitas selama 5 siklus dibandingkan usia 36-60 tahun.

2) Jenis Kelamin

Laki-laki lebih efektif dalam melakukan RJP yang berkualitas. Laki-laki memiliki peluang melakukan kompresi dada 3,85 kali lebih besar daripada perempuan

3) Indeks Massa Tubuh

Indeks massa tubuh berbanding terbalik dengan status ketahanan kardiorespirasi, kardiorespirasi merupakan kemampuan paru dan jantung untuk mensuplai oksigen ke seluruh jaringan sel tubuh sebagai energi untuk dapat melakukan aktivitas fisik seperti lari, berenang, bersepeda, olahraga permainan, dan lain-lain. Seorang individu cepat kelelahan dikasenakan status kardiorespirasi rendah. Semakin rendah status kardiorespirasi maka IMT semakin tinggi. Jadi dapat disimpulkan bahwa RJP yang berkualitas di pengaruhi oleh IMT.

4) Kelelahan

Pemberian RJP sudah tidak dapat dikatakan adekuat jika seorang individu mengalami kelelahan. Hal ini didasarkan oleh teori yang menjelaskan bahwa jika kontraksi otot dilakukan lebih dari 5-10 detik maka beresiko terjadinya proses glikolisis anaerob yang sumber utamanya adalah glikogen. Terjadinya peningkatan kadar asam laktat yang menyebabkan individu mengalami kelelahan ketika glikogen pecah.

5) Frekuensi Pelatihan dan Faktor Pengetahuan

Pelatihan yang dilakukan oleh individu secara aktif akan meningkatkan kemampuan dan kepercayaan diri untuk menolong seseorang yang mengalami henti jantung dalam melakukan RJP yang berkualitas.

6) Rajin Olahraga

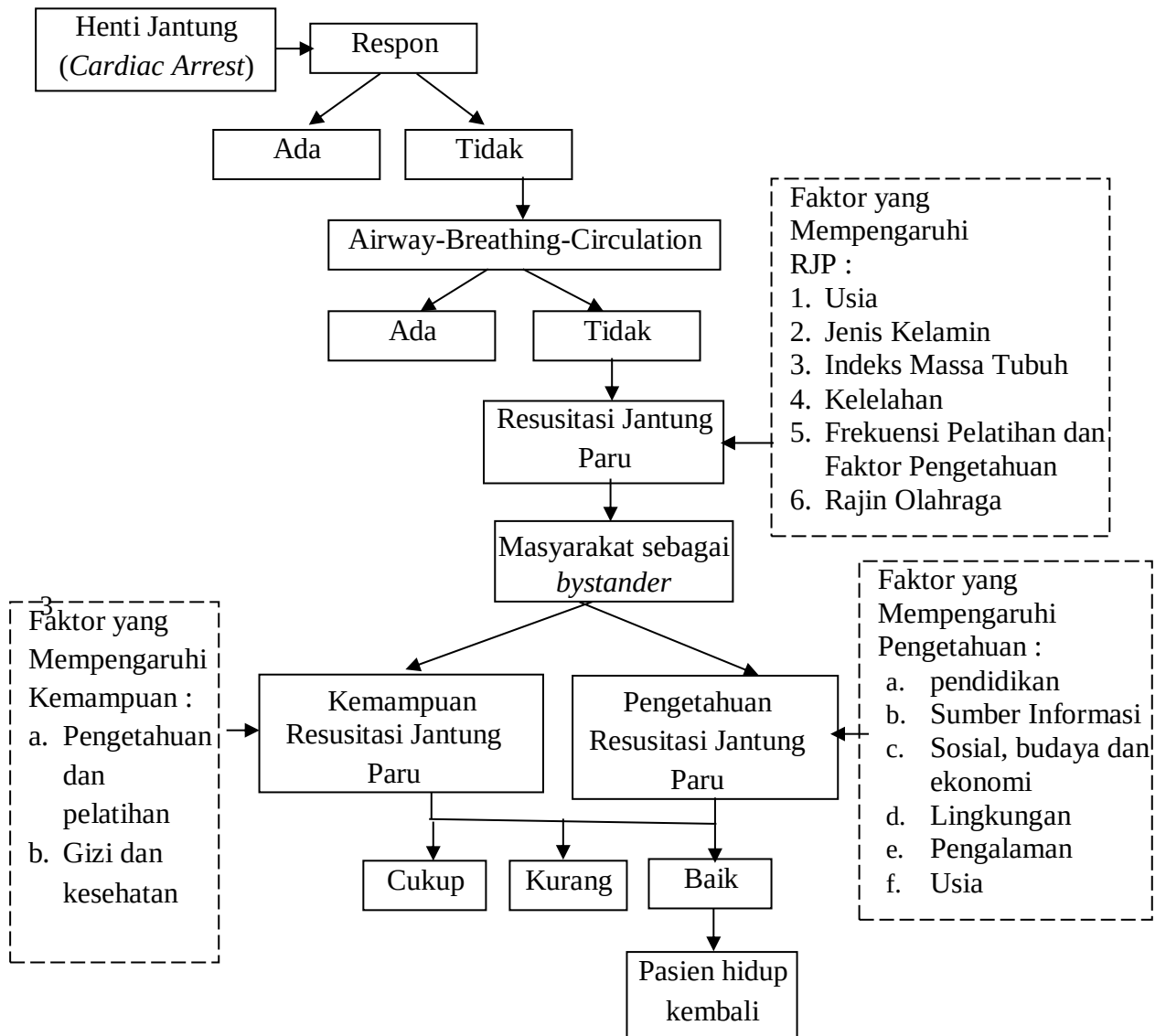
Ketika seseorang secara teratur menggunakan otot-otot tubuh bagian atas otot-otot tubuh bagian atas mereka lebih kuat daripada orang lain, jarang berolahraga karena otot punggung dan perut bergerak lebih ekstra daripada otot lainnya dalam pemberian RJP yang berkualitas.

2.5 Hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada OHCA

Henti jantung merupakan permasalahan yang terjadi saat ini. Ketika menemukan seseorang yang mengalami henti jantung, maka kita sebagai *bystander* harus segera melakukan pertolongan pertama secara tepat dan cepat untuk menyelamatkan nyawa. Resusitasi jantung paru (RJP) merupakan tindakan untuk menyelamatkan nyawa ketika terjadi henti jantung (*cardiac arrest*). Henti jantung ini akan berakibat kematian jika tidak segera ditangani. Masalah utama pada kasus henti jantung ini yaitu kurangnya kemampuan masyarakat dalam melakukan pertolongan pertama pada korban yang mengalami henti jantung yang disebabkan karena kurangnya pengetahuan yang dimiliki masyarakat khususnya tentang cara melakukan resusitasi jantung paru sehingga angka kematian akibat henti jantung meningkat setiap tahunnya (Darwati & Setianingsih, 2020).

Penelitian sebelumnya mengatakan bahwa tingkat kelangsungan hidup korban OHCA masih rendah disebabkan karena kurangnya pengetahuan masyarakat dalam melakukan RJP pada korban yang mengalami henti jantung. Dari hasil penelitian yang telah dilakukan oleh peneliti didapatkan hasil bahwa usia responden yang paling banyak berusia antara 25-35 tahun dengan tingkat pendidikan terakhir yaitu SMA dengan kemampuan sebelum diberikan pengetahuan tentang resusitasi adalah sangat kurang. Setelah dilakukan penelitian didapatkan kemampuan yang baik dalam pelaksanaan RJP (Kusumawati & Jaya, 2019).

2.6 Kerangka Teori



2.6 Kerangka Teori

BAB 3

METODE PENELITIAN

3.1 Strategi Pencarian Literature

3.1.1 Protokol dan Registrasi

Literature review bertujuan untuk menganalisa dan mengembangkan suatu informasi pengetahuan yang telah diteliti sebelumnya. Rangkuman menyeluruh dalam bentuk *review* mengenai pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru pada kasus henti jantung di luar rumah sakit.

3.1.2 Database Penelitian

Rangkuman menyeluruh dari beberapa studi penelitian berdasarkan tema yang telah ditentukan disebut *literature review*. Tahun penerbitan yang dipakai pada pencarian *literatur review* adalah tahun 2017 sampai 2021. Data sekunder yang digunakan dalam penelitian ini. Sumber data yang didapat berupa artikel internasional dan nasional dengan tema yang telah ditentukan. Dari jurnal tersebut dianalisa dan dikembangkan dalam bentuk *literatur review*. Pencarian literature dalam *literature review* ini menggunakan 3 database yaitu *Google Scholar*, *ProQuest* dan *PubMed*.

3.1.3 Kata Kunci

Dalam pencarian artikel menggunakan kata kunci dan *boolean operator* (AND, OR NOT atau NOT) yang digunakan peneliti untuk lebih spesifik dalam pencarian artikel sehingga dapat mempermudah dalam pencarian artikel, Kata kunci dalam *literature review* ini adalah sebagai berikut.

Tabel 3.1 Kata Kunci

Pengetahuan	Kemampuan	RJP	OHCA
Or	Or	Or	Or
<i>Knowledge</i>	<i>Ability</i>	CPR	OHCA

3.3 Kriteria Inklusi dan Eksklusi

Kriteria inklusi merupakan ciri-ciri umum dalam subjek penelitian dari suatu kelompok sasaran yang akan di teliti. Sedangkan kriteria eksklusi merupakan meghilangkan subjek untuk memenuhi kriteria karena berbagai alasan. Strategi yang digunakan yaitu menggunakan *PICOS framework*, yang terdiri dari:

- Problem* yaitu masalah dalam artikel yang akan dianalisis berdasarkan topik yang sudah diidentifikasi dalam *literature review*.
- Intervention* yaitu suatu tindakan penatalaksanaan terhadap kasus perorangan atau masyarakat tentang penatalaksanaan studi sesuai dengan tema yang sudah ditentukan dalam *literature review*.
- Comparison* yaitu intervensi atau penatalaksanaan lain yang digunakan sebagai pembanding, jika tidak ada bisa menggunakan kelompok kontrol dalam studi yang terpilih.
- Outcome* yaitu hasil yang diperoleh pada penelitian sebelumnya yang sesuai dengan tema yang sudah diidentifikasi dalam *literature review*.
- Study design* yaitu desain penelitian yang digunakan dalam artikel yang akan di *review*.

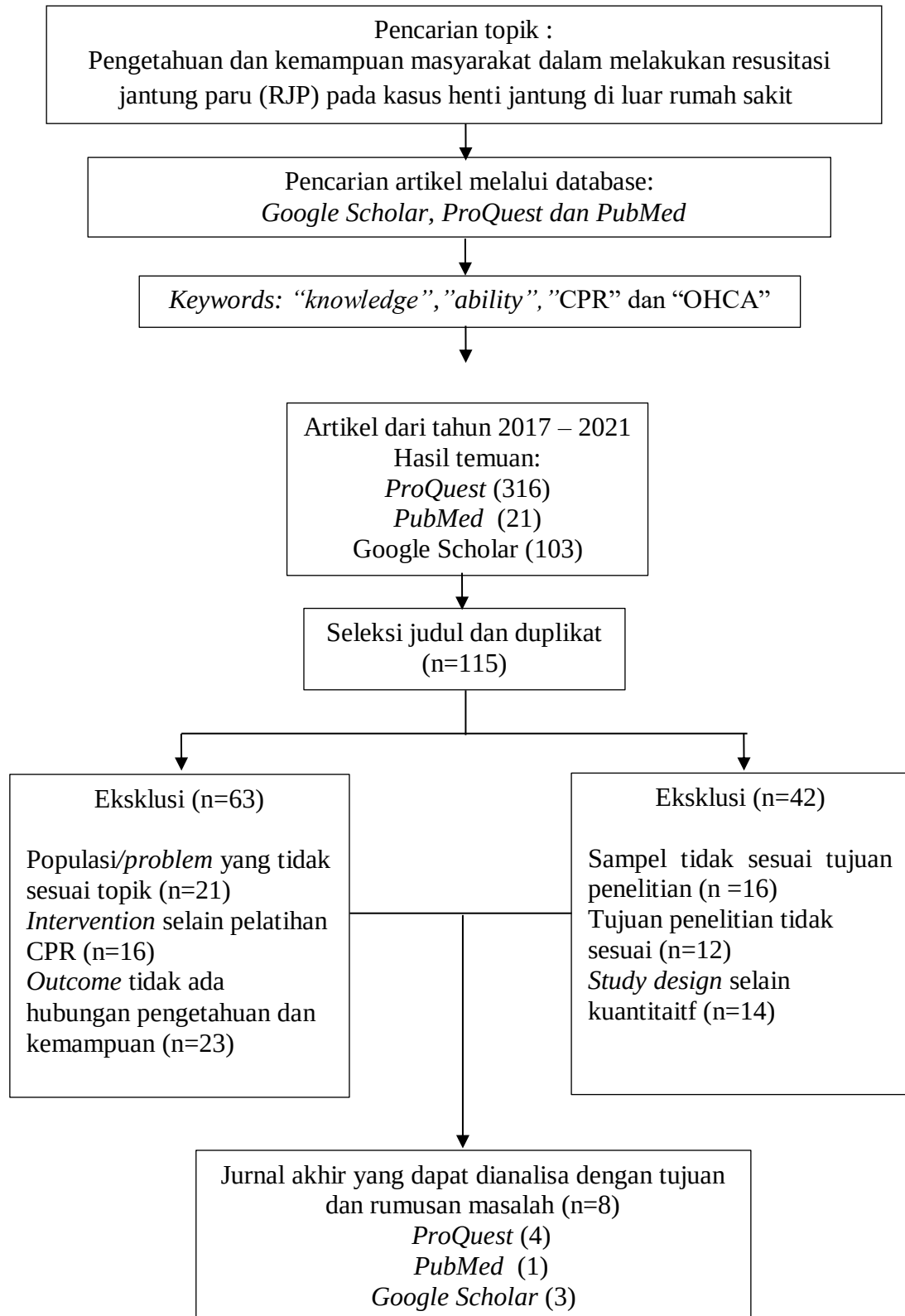
Tabel 3.2 Kriteria inklusi eksklusi

Kriteria	Inklusi	Eksklusi
<i>Population/ Problem</i>	Artikel yang berhubungan dengan topik yang di teliti, yaitu pengetahuan dan kemampuan masyarakat dalam melakukan RJP di luar rumah sakit	Artikel yang tidak berhubungan dengan topik yang di teliti, yaitu pengetahuan dan kemampuan masyarakat dalam melakukan RJP di luar rumah sakit
<i>Intervention</i>	Pelatihan CPR untuk menilai pengetahuan dan kemampuan masyarakat	Selain pelatihan CPR
<i>Comparison</i>	Tidak ada pembandingan	
<i>Outcome</i>	Ada hubungan pengetahuan dan kemampuan masyarakat dalam melakukan RJP di luar rumah sakit.	Tidak ada hubungan pengetahuan dan kemampuan masyarakat dalam melakukan RJP di luar rumah sakit.
<i>Study design</i>	Metode kuantitatif	Metode kualitatif, <i>literatur review</i>
<i>Language</i>	Bahasa inggris dan Bahasa Indonesia	Selain bahasa inggris dan bahasa Indonesia
<i>Publication years</i>	Tahun 2017 sampai 2021	Sebelum tahun 2017

3.4 Seleksi Studi dan Penilaian Kualitas

Strategi dalam pencarian data yang dilakukan penulis dalam menganalisis *literature review* ini dengan menggunakan *keywords* : “*knowledge*”, “*ability*”, “*CPR*” dan “*OHCA*”. Pencarian dalam 3 database yang dilakukan di *Google Scholar*, *ProQuest* dan *PubMed*. Sejumlah 440 jurnal. Berdasarkan artikel dalam rentang mulai tahun 2017 hingga tahun 2021, dilihat dari seleksi judul dan duplikat didapatkan sejumlah artikel 115 jurnal. Peneliti kemudian skringing berdasarkan judul dan duplikat menyisakan artikel, lalu dilakukan eksklusi dengan kriteria inklusi meliputi : populasi/*problem* yang tidak sesuai topik (n=21), intervensi selain pelatihan CPR (n=16), *outcome* tidak ada hubungan pengetahuan dan kemampuan (n=23), sampel tidak sesuai tujuan penelitian (n = 16), tujuan penelitian tidak sesuai (n=12), *study design* selain kuantitatif (n=14). Hasil dari pencarian dan seleksi studi didapatkan artikel akhir yang dianalisa dan bisa digunakan sebanyak delapan artikel yang akan dilakukan *review*.

Gambar 3.3 Diagram hasil pencarian dan seleksi studi



BAB 4

HASIL DAN ANALISA

4.1 Hasil

Pada *review* hasil penelitian ini disampaikan mengenai deskripsi hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit sebagai berikut:

Tabel 4.1 Review Artikel

1	Penulis dan Tahun	Reema M. Alhussein, Mansoor M. Albarrak, Abdulaziz A. Alrabiah, Nawfal A. Aljerian, Hashim M. Bin Salleeh, Ahmad S. Hersi, Tariq A. Wani and Zohair A. Al Aseri (2021)
	Judul	<i>Knowledge of non-healthcare individuals towards cardiopulmonary resuscitation: a cross-sectional study in Riyadh City, Saudi Arabia</i>
	Tujuan	Menilai pengetahuan tentang CPR individu di Kota Riyadh, Arab Saudi yang tidak terlibat dalam perawatan kesehatan.
	Desain	<i>Cross sectional</i>
	Sampel	856 penduduk Kota Riyadh, Saudi Arabia
	Variabel	Pengetahuan CPR pada orang awam
	Kriteria Inklusi dan Eklusi	Kriteri Inklusi : usia lebih dari 18 tahun, pria dan wanita yang tinggal di kota Riyadh, Saudi Arabia Kriteria Eklusi : usia kurang dari 18 tahun atau yang lulus dari spesialisasi medis dikeluarkan karena program mereka memiliki kursus BLS wajib.
	Instrumen	Data yang dikumpulkan dengan menggunakan kuisisioner yang dikelola dari literatur terdahulu, menggunakan pertanyaan dari penelitian yang sama. Kuisisioner ini diperoleh dari AHA 2015, dan analisis validitas dilakukan oleh dokter gawat darurat dan kardiologi. Validasi data dilakukan dibentuk di Microsoft Excel 16.0 dan data bersihnya adalah digunakan dalam analisis statistik.
	Analisa	<i>chi-square analysis and Fisher's exact test.</i> Statistik analisis dilakukan dengan software SPSS 25.0. P nilai < 0,05 dianggap

		signifikan secara statistik.
	Hasil	Tingkat pendidikan dan status pekerjaan menunjukkan hubungan yang signifikan dengan pengetahuan. Tapi usia, jenis kelamin, dan daerah tempat tinggal tidak signifikan. Status pekerjaan, ibu rumah tangga cenderung memiliki sikap positif terhadap CPR daripada siswa (OR = 0,23; 95% CI = 0,12-0,46; p < 0,001). Selain itu, peserta pascasarjana yang memenuhi syarat lebih mungkin memiliki pengetahuan tentang CPR daripada peserta dengan pendidikan tingkat dasar (OR = 7,37; 95% CI = 1,29–42,13; p = 0,025).
	Database	<i>ProQuest</i>
	JB I	Berdasarkan pengukuran JBI <i>critical appraisal checklis for analytical cross sectional</i> yang saya lakukan jurnal tersebut mencapai nilai 75% sehingga memenuhi syarat untuk dilakukan review.
2	Penulis dan Tahun	Chilot Kassa Mekonnen and Addis Bilale Muhye (2020)
	Judul	<i>Basic Life Support Knowledge and Its Associated Factors Among a Non-Medical Population in Gondar Town, Ethiopia</i>
	Tujuan	Tujuan dari penelitian ini adalah untuk menilai pengetahuan dasar bantuan hidup dan faktor terkait antara populasi non-medis yang ada di departemen rawat jalan.
	Desain	<i>Cross sectional</i>
	Sampel	423 peserta, di kota Gondar Northwest Etiopia. Peserta penelitian dipilih dengan menggunakan sistem acak.
	Variabel	Pengetahuan BHD dan faktor-faktor BHD individu non medis
	Kriteria Inklusi dan Eklusi	Kriteri Inklusi : Semua individu dewasa non-medis yang menjalani rawat jalan dinas kesehatan kota Gondar Kriteri eksklusi : individu yang memiliki penyakit berat dan memiliki kesulitan komunikasi.
	Instrumen	Kuesioner terstruktur yang dikelola oleh pewawancara yang telah diuji sebelumnya didapatkan dari penelitian lain yang terkait digunakan untuk mengumpulkan data. Data di uji reliabilitas menggunakan teknik <i>Cronbach's Alpha</i> setelah item dihapus dari pengetahuan ditemukan hasil 0,845 (jika r-hitung lebih besar dari

		0,65 maka reliabel)
	Analisa	Skor pengetahuan diuji normalitasnya menggunakan <i>Uji Shapiro–Wilk</i> dan distribusinya dibandingkan antara kategori sosio-demografi yang telah ditentukan sebelumnya variabel. Model kebugaran diperiksa oleh HosmerLeme menunjukkan <i>goodness of fit</i> dengan <i>p-values</i> >0,05. Analisis regresi logistik biner digunakan untuk melihat hubungan antara variabel dependen dan independen mampu. Rasio ODDS mentah dan disesuaikan dengan korelasi sponding interval dengan kepercayaan 95%. Di regresi logistik multivariabel, variabel independen dengan nilai-P 0,05 dianggap signifikan secara statistik dalam analisis multivariabel.
	Hasil	Di antara variabel yang dimasukkan ke dalam regresi logistik berganda analisis umur, jenis kelamin, tempat tinggal, pelatihan tentang bantuan hidup dasar, pernah mendengar tentang bantuan hidup dasar, dan paparan dengan orang yang membutuhkan bantuan hidup dasar adalah signifikan tidak dapat dikaitkan dengan skor pengetahuan. Peserta dengan usia 30-40 tahun sekitar 50% [AOR=1,50, 95% CI (1,15–1,97)] lebih memiliki pengetahuan yang baik tentang BHD, dibandingkan usia >40 tahun dengan skor 2,45[AOR=2,45, 95 CI (1,53–3,91)]. Jenis kelamin laki-laki ditemukan lebih berpengetahuan dibandingkan perempuan [AOR = 2,22, 95% CI (1,41–3,49)]. Mereka yang tinggal di perkotaan ditemukan 66% [AOR=1,66, 95% CI (1,25–3,56)] lebih berpengetahuan dibandingkan dengan penduduk pedesaan.
	Database	<i>ProQuest</i>
	JBİ	Berdasarkan pengukuran JBI <i>critical appraisal checklis for analytical cross sectional</i> yang saya lakukan jurnal tersebut mencapai nilai 75% sehingga memenuhi syarat untuk dilakukan review.
3	Penulis dan Tahun	Fadi Jandali Qara, Loui K. Alsulimani, Maged M. Fakeeh, and Diyaa H. Bokhary (2018)
	Judul	<i>Knowledge of Nonmedical Individuals about Cardiopulmonary Resuscitation in Case of Cardiac Arrest: A Cross-Sectional Study in</i>

		<i>the Population of Jeddah, Saudi Arabia</i>
Tujuan		Menilai pengetahuan individu nonmedis mengenai RJP dalam kasus serangan jantung di luar rumah sakit
Desain		<i>Cross sectional</i>
Sampel		600 penduduk Jeddah, Arab Saudi.
Variabel		Pengetahuan Individu non medis tentang RJP
Kriteria Inklusi dan Eklusi		Kriteri Inklusi : berusia lebih dari atau sama dengan 18 tahun dan tidak penyedia layanan kesehatan. Kriteria Eklusi : Mereka yang berusia di bawah 18 tahun dikeluarkan
Instrumen		Kuesioner dibagikan kepada warga Jeddah, Arab Saudi, antara Maret 2018 dan April 2018. Kuisisioner yang digunakan dalam penelitian ini diambil dari survei yang dilakukan di Izmir, Turki. Baik kuesioner bahasa Arab dan bahasa Inggris adalah dibagikan pada waktu terpisah kepada 30 peserta yang berbicara bahasa Inggris dan bahasa Arab dengan lancar. Pengambilan data menggunakan 22 pertanyaan dalam bahasa arab, yang berisi, pengetahuan mereka tentang manifestasi henti jantung, pengalaman CPR mereka sebelumnya, apakah mereka tahu atau tidak nomor telepon untuk situasi darurat; pengetahuan BLS, kekhawatiran mereka tentang CPR dan sikap mereka dalam melakukan CPR.
Analisa		Data dianalisis menggunakan Paket Statistik untuk program paket perangkat lunak Ilmu Sosial versi 15.0. Data kategoris ditampilkan dalam bentuk angka (n) dan persentase (%), sedangkan numerik data ditampilkan dalam bentuk mean $\pm$ standar deviasi (setelah pengujian normalitas distribusi). <i>chi-kuadrat tes</i> digunakan dalam analisis data kategoris. Nilai p dari $< 0,05$ dalam uji statistik diterima sebagai signifikan.
Hasil		Hasil survei mengungkapkan perbedaan yang signifikan dalam identifikasi serangan jantung antara responden dengan pelatihan CPR sebelumnya. Mereka yang telah menerima pelatihan menunjukkan tingkat yang lebih tinggi untuk mengetahui prosedur

		yang benar dari evaluasi tingkat kesadaran, pernapasan dan sirkulasi ($p=0.015$, $p=0.018$ dan $p=0.026$) dan mengetahui tentang, di mana lokasi kompresi dada yang tepat, tingkat kompresi dada, dan kekuatan yang harus diterapkan selama kompresi dada ($p < 0,0001$, $p < 0,0001$, dan $p = 0,004$).
	Database	<i>ProQuest</i>
	JB	Berdasarkan pengukuran JBI <i>critical appraisal checklis for analytical cross sectional</i> yang saya lakukan jurnal tersebut mencapai nilai 50% sehingga memenuhi syarat untuk dilakukan review.
4	Penulis dan Tahun	Samiha Jarrah, Mahfuz Judeh and Mohannad Eid AbuRuz (2018)
	Judul	<i>Evaluation of public awareness, knowledge and attitudes towards basic life support: a cross-sectional study</i>
	Tujuan	mengevaluasi kesadaran, pengetahuan, dan sikap publik terhadap BLS di Yordania.
	Desain	Desain deskriptif, <i>cross sectional study</i>
	Sampel	300 orang dewasa Yordania berusia di atas 18 tahun, dari tiga wilayah metropolitan di wilayah utara, tengah dan selatan.
	Variabel	Kesadaran BLS, pengetahuan BLS dan Sikap BLS
	Kriteria Inklusi dan Eklusi	Kriteria Inklusi : berusia diatas 18 tahun, kebangsaan Yordania, bisa membaca dan menulis Arab, menandatangani informed consent, bukan mahasiswa kesehatan Kriteria Eklusi : mahasiswa kesehatan, karena memiliki progam kursus wajib tentang BLS
	Instrumen	Data yang dikumpulkan dari 3 kota besar di wilayah utara, tengah dan selatan Yordania. Instrument menggunakan Kuesioner berdasarkan pedoman dari <i>american heart association (AHA)</i> tentang BLS yang ditulis dalam bahasa Arab. Penelitian ini telah disetujui oleh <i>Institutional Review Board committee at the Applied Science Private University</i> (Faculty 018). Pengambilan data berdasarkan karakteristik sosiodemografi peserta, menilai pengetahuan, sikap dan kesadaran mereka tentang BLS, yang terakhir ini terdiri dari 22 pertanyaan tentang tanda dan

		gejala henti jantung, pengalaman CPR, lokasi dan kecepatan kompresi.
	Analisa	Analisis data dilakukan dengan menggunakan SPSS versi 21. Pengambilan sampel dilakukan dengan statistik deskriptif meliputi n (%) atau mean $\pm$ SD. A <i>chi-squared test</i> digunakan untuk mengetahui perbedaan ada tidaknya perbedaan antara yang mendapat pelatihan dan yang tidak mengetahui identifikasi henti jantung, tindakan yang dilakukan saat henti jantung, dan praktik CPR. Nilai $p < 0,05$ dianggap signifikan secara statistik.
	Hasil	Peserta yang mendapatkan pelatihan CPR memiliki tingkat pengetahuan yang tinggi terhadap cara melakukan CPR yang benar daripada yang belum mendapatkan pelatihan. Terkait tanda-tanda henti jantung, evaluasi kesadaran, pernafasan dan sirkulasi. Responden yang menyatakan telah menerima pelatihan CPR lebih bersedia untuk mencobanya jika dibutuhkan di rumah (rasio odds = 3,3; kepercayaan 95% antar nilai, 2.4–4.6; $P < 0,001$), dan pada orang di luar rumah sakit (4.3; 3.1–6.1; $P < 0,001$) dalam keadaan darurat.
	Database	<i>ProQuest</i>
	JB	Berdasarkan pengukuran <i>JB critical appraisal checklist for analytical cross sectional</i> yang saya lakukan jurnal tersebut mencapai nilai 50% sehingga memenuhi syarat untuk dilakukan review.
5	Penulis dan tahun	Yun Teng, Yunxuan Li, Liya Xu, Fanyu Chen, Hailiu Chen, Ling Jin, Jimei Chen, Jingjing Huang ,dan Gang Xu (2020)
	Judul	<i>Awareness, knowledge and attitudes towards cardiopulmonary resuscitation among people with and without heart disease relatives in South China: a cross sectional survey</i>
	Tujuan	Untuk menilai kesadaran, pengetahuan dan sikap terhadap resusitasi jantung paru (RJP) di antara orang awam dengan atau tanpa penyakit jantung dan pengaruh mereka di Cina Selatan.
	Desain	<i>Cross sectional</i>
	Sampel	Pasien sehat yang berada di Zhongshan Ophthalmic Centre dan

		berusia di atas 18 tahun yang tidak memiliki kekurangan psikologis. Ukuran sampel dihitung dengan perangkat lunak PASS V.16.0 (NCSS, LLC, AS).
	Variabel	Kesadaran, pengetahuan dan sikap terhadap resusitasi jantung paru (RJP)
	Kriteria Inklusi dan Eklusi	Kriteri Inklusi : 1) Pasien sehat yang berada di Zhongshan Ophthalmic Centre, yang memiliki kerabat yang tidak tahu penyakit jantung 2) Usia diatas 18 tahun dan tidak memiliki kekurangan psikologis Kriteria Eklusi : Usia di bawah 18 tahun
	Instrumen	Desain kuesioner didasarkan pada publikasi literatur tentang kesadaran CPR, 12-14 yang dijelaskan sebagai mengetahui dan memiliki pengetahuan tentang CPR di kalangan umum publik. Item di bagian pertama kuesioner (10 pertanyaan tentang karakteristik demografis) termasuk jenis kelamin, usia, tingkat pendidikan, pekerjaan, lokasi tempat tinggal dan pendapatan. Empat pertanyaan tambahan tentang jenis penyakit kardiovaskular, jumlah kunjungan sebelumnya ke rumah sakit dan jumlah perawatan bedah pasien dengan penyakit jantung. Bagian kedua terdiri dari 11 pertanyaan tentang pelatihan CPR (pertanyaan 1-3), kesediaan untuk belajar CPR (pertanyaan 4, 6 dan 11), sikap terhadap CPR pembelajaran (pertanyaan 5) dan pengetahuan CPR (pertanyaan 7 sampai 10) Draf kuesioner diberikan kepada 20 pasien dalam survei percontohan di kedua rumah sakit sebelum inisiasi
	Analisa	Semua kuesioner divalidasi dan diverifikasi. Itu dengan tanggapan yang tidak lengkap atau duplikat dikeluarkan. Analisis dilakukan dengan menggunakan SPSS V.24.0 (IBM SPSS Statistik untuk Windows, V.24.0. IBM Armonk, New York, AMERIKA SERIKAT). Analisis regresi logistik ordinal digunakan untuk menyelidiki faktor-faktor yang mempengaruhi pengetahuan tentang CPR. Semua variabel dengan $p < 0,05$ dalam model regresi univariabel dimasukkan dalam analisis regresi multivariabel. Tingkat signifikan pada $p < 0,05$.

	Hasil	Dari 2557 kuesioner yang disebarkan secara total, 2457 (96,1%) kuesioner telah diisi dan valid. Analisis regresi mengungkapkan bahwa pendidikan tinggi dikaitkan dengan tingkat pelatihan CPR, dan tenaga kesehatan memperoleh lebih banyak pelatihan daripada yang lain ($p=0,05$). Selain itu, tingkat pendapatan yang lebih rendah berkorelasi dengan pengalaman pelatihan CPR yang lebih sedikit (OR 0,47; 95% CI 0,24 hingga 0,92; $p=0,028$). Kelompok 2 memiliki tingkat pendidikan yang lebih tinggi, pendapatan yang lebih tinggi dan lebih banyak penduduk perkotaan daripada kelompok 1, jadi kelompok 1 memiliki lebih sedikit paparan pelatihan CPR dibandingkan kelompok 2 (OR 0,54; 95% CI 0,40 hingga 0,73; $p=0,05$). Perbedaan hubungan pasien penyakit jantung, jumlah kunjungan klinik dan operasi jantung tidak berpengaruh signifikan terhadap pelatihan CPR kelompok 1 ($p>0,05$).
	Database	<i>PubMed</i>
	JB	Berdasarkan pengukuran JBI <i>critical appraisal checklis for analytical cross sectional</i> yang saya lakukan jurnal tersebut mencapai nilai 75% sehingga memenuhi syarat untuk dilakukan review.
6	Penulis dan Tahun	Alga Febriana H, Yuniar Ika Fajarini dan Akbar Amin Abdullah
	Judul	Pengaruh Pelatihan Resusitasi Jantung Paru (RJP) Terhadap Tingkat Pengetahuan Pada Siswa Kelas X Di Sma N 1 Karanganom Klaten
	Tujuan	Untuk mengetahui pengaruh pelatihan resusitasi jantung paru terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karanganom Klaten.
	Desain	<i>quasy-eksperiment design</i> dengan menggunakan <i>desain one group pretest-posttest</i>
	Sampel	siswa kelas X SMA N 1 Karanganom Klaten yang berjumlah 24 siswa.
	Variabel	Pengetahuan RJP
	Kriteria Inklusi dan Eklusi	Tidak dijelaskan kriteria inklusi dan eklusi. Usia responden yaitu 14-16 tahun, jenis kelamin wanita dan pria.

	Instrumen	Instrumen menggunakan kuisioner tertutup.
	Analisa	Setelah diberikan pelatihan, responden dianalisis menggunakan Analisis bivariate menggunakan uji Wilcoxon diperoleh hasil yang signifikan ($p=0,000$) yang berarti nilai $p<0,05$ Hipotesis ini dapat diartikan bahwa H_0 ditolak dan H_a diterima yaitu ada perbedaan antara sebelum dan sesudah dilakukan pelatihan RJP terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karanganom Klaten.
	Hasil	Terdapat pengaruh pelatihan resusitasi jantung paru terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karanganom Klaten $p=0,000(p<0,05)$ sehingga penelitian ini dapat menambah wawasan responden dalam menangani korban henti jantung.
	Database	<i>Google Scholar</i> , terakreditasi Sinta 5
	JBI	Berdasarkan pengukuran JBI <i>critical appraisal checklis for analytical pre experimental</i> yang saya lakukan jurnal tersebut mencapai nilai 78% sehingga memenuhi syarat untuk dilakukan review.
7	Penulis dan Tahun	Meliana Nurvitasari, Janes Jainurakhma dan Zulfikar Muhammad
	Judul	<i>Effect of cardiac arrest management training on the ability of ordinary people to perform high-quality cardio pulmonary resuscitation.</i>
	Tujuan	Penelitian ini bertujuan untuk mengetahui apakah ada pengaruh pelatihan manajemen henti jantung terhadap kemampuan orang awam untuk mrlakukan CPR berkualitas tinggi.
	Desain	Penelitian ini menggunakan desain <i>pre-experimental</i> dengan metode <i>one-grup pre post test design</i> .
	Sampel	Jumlah sampel 35 participan di desa Karangsuko.
	Variabel	Pelatihan manajemen henti jantung dan kemampuan orang awam dalam melakukan CPR
	Kriteria Inklusi dan Eklusi	Kriteria Inklusi : kader kesehatan desa yang sehat jasmani dan rohani, dengan usia 18 tahun keatas Kriteria Eklusi : mereka yang memiliki cacat fisik pada tangan dan gangguan pendengaran

	Instrumen	Lembar observasi berdasarkan AHA 2015, instrumen sudah di validasi oleh 2 ahli dan memenuhi persyaratan untuk mengukur kemampuan melakukan CPR. Lembar terdiri dari 20 item observasi. Jika peserta melakukan tindakan dengan benar skornya 2, jika peserta melakukan tindakan tapi dengan cara salah skornya 1, jika tidak melakukan tindakan skornya 0.
	Analisa	Pengumpulan data selama 6 bulan. Perlakuan diberikan selama 3 minggu berturut-turut dan berulang. Analisis data dalam penelitian ini, data berdistribusi normal berdasarkan uji normalitas <i>Shapiro Wilk</i> ($p \geq 0,5$). <i>Paired t-test</i> digunakan untuk melihat pengaruh intervensi antara <i>pre-post test</i> .
	Hasil	Terdapat pengaruh yang signifikan dalam pelatihan manajemen henti jantung terhadap kemampuan melakukan CPR kualitas tinggi ($p < 0,001$), dengan peningkatan rata-rata dari 19,62 (SD=5,50) sebelum intervensi menjadi 37,91 (SD=1,29)
	Database	<i>Google Scholar</i> , terakreditasi Sinta 1
	JB1	Berdasarkan pengukuran <i>JB1 critical appraisal checklis for analytical pre experimental</i> yang saya lakukan jurnal tersebut mencapai nilai 78% sehingga memenuhi syarat untuk dilakukan review.
8	Penulis dan Tahun	Prima Dewi Kusumawati dan Adetya Wahyu Dwi Jaya
	Judul	Efektifitas Simulasi Resusitasi Jantung Paru Terhadap Kemampuan Penatalaksanaan Resusitasi Jantung Paru Anggota Brimob
	Tujuan	Mengetahui tingkat efektifitas simulasi resusitasi jantung paru terhadap kemampuan penatalaksanaan resusitasi jantung paru Anggota Brimob
	Desain	<i>Pre-experimental</i> dengan pendekatan <i>one-group pre test post test</i> .
	Sampel	25 responden
	Variabel	Varibel independen pemberian simulasi Resusitasi Jantung Paru Variabel dependen kemampuan penatalaksanaan Resusitasi Jantung Paru
	Kriteria Inklusi dan Eklusi	Tidak dijelaskan kriteria inklusi dan eklusinya. Populasi semua anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda

		Jatim sebanyak 100 orang Responden diambil dengan teknik accidental sampling, berusia rata-rata 25-35 tahun
	Instrumen	Instrumen menggunakan wawancara secara langsung kepada 8 anggota brimob golongan I tentang tindakan Resusitasi Jantung Paru (RJP). Wawancara berisi tentang kemampuan anggota brimob dalam melakukan RJP Ketika ada korban dengan henti jantung.
	Analisa	dianalisis dengan uji statistik <i>wilcoxon</i>
	Hasil	Penelitian menunjukan seluruh Anggota Brimob memiliki kemampuan dengan kategori kurang terampil dalam melakukan resusitasi jantung paru sebelum dilakukan simulasi yaitu sebanyak 25 (100%) responden, Hampir seluruh Anggota Brimob memiliki kemampuan dengan kategori terampil dalam melakukan resusitasi jantung paru setelah dilakukan simulasi yaitu sebanyak 22 (88,0%). Hasil analisis data menunjukan bahwa tingkat signifikansi nilai $p = 0,000$ sehingga H_1 diterima. Jadi ada pengaruh simulasi Resusitasi Jantung Paru terhadap kemampuan penatalaksanaan Resusitasi Jantung Paru (RJP) Anggota Brimob di Kompi 1 Batalyon C Pelopor Sat brimob Polda Jatim
	Database	<i>Google Scholar</i> , Terakreditasi Sinta 5
	JBI	Berdasarkan pengukuran JBI <i>critical appraisal checklis for analytical pre experimental</i> yang saya lakukan jurnal tersebut mencapai nilai 66% sehingga memenuhi syarat untuk dilakukan review.

4.2 Analisa

4.2.1 Deskripsi Artikel

Hasil pencarian *literature*, peneliti menemukan sebanyak 8 artikel yang akan dilakukan *review* dengan karakteristik studi sebagai berikut :

Tabel 4.2 Deskripsi Artikel

No	Kriteria	%
Jurnal :		
1	Nasional	38%
	Internasional	63%
Desain :		
2	<i>Cross Sectional</i>	63%
	<i>Pre-Experimental</i>	38%
Analisis :		
3	<i>Chi-Kuadrat tes</i>	38%
	<i>Shapiro Wilk</i>	25%
	<i>Uji Wilcoxon</i>	25%
	<i>SPSS V.24.0</i>	13%
Database :		
4	<i>ProQuest</i>	50%
	<i>PubMed</i>	13%
	<i>Google Scholar</i>	38%

Tabel 4.2 Karakteristik studi tentang hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit, dari 8 artikel diketahui bahwa artikel sebagian besar adalah artikel internasional 63%. Desain yang digunakan sebagian besar *cross sectional* 63%. Analisis data yang digunakan sebagian besar *chi-kuadrat tes* 38%. Database pencarian jurnal yang ditemukan sebagian besar yaitu *ProQuest* 50%.

4.2.2 Pengetahuan resusitasi jantung paru (RJP)

Pada hasil *review* pada enam artikel disampaikan hasil secara deskriptif mengenai pengetahuan RJP. Menurut Alhussein, et al., (2021) pengetahuan yang di peroleh mengenai penerapan CPR dalam hal membuka jalan nafas, pemberian ventilasi dari mulut ke mulut, memulai kompresi (36%), memberikan kompresi dada dari mulut ke mulut, selain itu peserta di nilai dari kecepatan kompresi yang tepat, rasio, lokasi kompresi, dan gaya yang harus diterapkan selama kompresi, mereka yang mengikuti pelatihan CPR menunjukkan tingkat pengetahuan yang lebih tinggi daripada mereka yang belum mengikuti pelatihan CPR, dijelaskan bahwa mayoritas masyarakat bersedia melakukan CPR pada keluarga, selanjutnya pada teman, tetangga dan minoritas pada orang asing.

Artikel Mekonnen & Muhye (2020) disebutkan bahwa pengetahuan yang harus dimiliki tentang komponen bantuan hidup dasar, tanda dan manajemen masalah pernapasan, manajemen perdarahan dan imobilisasi fraktur, posisi korban, komunikasi dan transportasi korban mulai dari tempat kejadian. Dalam penelitian ini tingkat pengetahuan yang baik tentang bantuan hidup dasar ditemukan sekitar 44,4% di antara peserta non-medis. Seseorang yang pernah mendengarkan tentang bantuan hidup dasar lebih berpengetahuan daripada yang belum mendengar sama sekali. Mereka yang tinggal di perkotaan ditemukan 66% daripada di pedesaan. Pelatihan ini dikategorikan menjadi tiga yaitu lisan, praktis dan keduanya. Dalam penelitian ini, hanya 18,5% dari peserta berkesempatan

mengikuti pelatihan tentang bantuan hidup dasar, antara lain: ini hanya 20% yang memiliki jenis pelatihan praktis.

Artikel Qara, Alsulimani,, M. Fakeeh,, & H. Bokhary (2018) sebagian besar disepakati bahwa CPR adalah salah satu yang paling penting dari metode yang tersedia untuk menyelamatkan hidup pasien dengan henti jantung. Dengan demikian untuk mengevaluasi tingkat pengetahuan di masyarakat. Dari data tersebut 28,7% menyatakan bahwa mereka pernah mendapatkan pelatihan CPR. Pelatihan untuk meningkatkan pengetahuan yang dimiliki meliputi : manifestasi henti jantung, manajemen pernafasan dan manajemen sirkulasi. Hanya 11,7% diantara responden ditemukan mampu melakukan kompresi dada. Juga, hanya 9,2% yang bisa melakukan dari mulut ke mulut ventilasi dan 29,5% mampu melakukan keduanya, sementara 55,5% mengetahui lokasi untuk melakukan kompresi dada, 44,7% mengetahui kedalaman yang benar dan hanya 18,5% yang mengetahui tingkat kompresi-ventilasi yang benar. Peserta dalam penelitian di tempatkan dalam situasi yang tiba-tiba serangan jantung salah satu anggota keluarga atau teman mereka hampir sepertiga peserta (35,8%) akan memulai CPR.

Artikel Jarrah, Judeh, & AbuRuz (2018) peserta yang menerima pelatihan memiliki pengetahuan yang lebih besar dari tiga tanda evaluasi kesadaran (pernafasan, sirkulasi dan kesadaran). Jumlah peserta yang mendapatkan pelatihan tentang melakukan kompresi dada dan ventilasi mulut ke mulut. Mayoritas responden menunjukkan bahwa mereka dapat

memberikan kompresi dada dan ventilasi bahwa 25,6% orang awam kembali menerima pelatihan CPR, mayoritas diantaranya akan melakukan CPR pada anggota keluarga mereka, selanjutnya pada teman dan terhadap tetangga.

Artikel Teng, Yunxuan Li, Xu, & Chen (2020) pelatihan RJP dari 33% responden tidak pernah mendengar tentang CPR. responden mengetahui tentang CPR adalah mayoritas melalui televisi (30%) dan internet (29%) beberapa responden (12%) melaporkan menghadiri kursus pelatihan CPR, 79% orang yang tidak mengikuti kursus pelatihan menunjukkan bahwa mereka belum pernah mendengar kursus CPR. Hanya 5,3% responden yang mengetahui seluruh manifestasi henti jantung, waktu saat CPR dan tingkat kompresi dada yang tepat untuk ventilasi buatan.

Artikel Febriana, Fajarini, & Abdullah (2018) peningkatan pengetahuan siswa dapat 36 dilihat sebelum pelatihan 8,3 % pengetahuan baik menjadi 95,8% dan penurunan pengetahuan yang cukup dari 66,7% menjadi 4,2%. Pengetahuan dalam kategori kurang dari 25% menjadi 0%. Keadaan ini disebabkan karena sedikitnya responden yang mendapatkan informasi tentang RJP, karena dengan banyaknya informasi yang diperoleh maka seseorang akan memiliki pengetahuan. Kurangnya informasi yang dimiliki responden disebabkan kurangnya pemberian pendidikan kesehatan yang mencakup pelatihan.

4.2.3 Kemampuan resusitasi jantung paru (RJP)

Pada hasil *review* pada dua artikel disampaikan hasil secara deskriptif mengenai kemampuan RJP. Artikel Nurvitasari, Jainurakhma, & Muhammad (2020) menyebutkan bahwa sebagian besar responden berusia kurang dari 36 tahun sebanyak 80%. Hal ini sangat berpengaruh pada kemampuan menerima informasi tentang penanganan henti jantung pra-rumah sakit. Penelitian kami menunjukkan bahwa 85,7% peserta belum pernah mendapatkan informasi tentang tatalaksana CPR namun setelah diberikan pelatihan keterampilannya meningkat dengan rata-rata kemampuan 37,91. Pelatihan dalam penelitian ini bertujuan untuk meningkatkan kemampuan dan pemahaman peserta dalam mengenali tanda dan gejala awal serangan jantung, kemampuan mencari pertolongan, kompresi CPR yang berkualitas dan ketepatan penempatan tangan, kecepatan kompresi, dan penilaian keberhasilan pertolongan pertama

Artikel Kusumawati & Jaya (2019) Kemampuan Resusitasi jantung paru (RJP) yang efektif adalah dengan menggunakan kompresi dan dilanjutkan dengan ventilasi. Komponen penting dalam melakukan RJP adalah kedalaman kompresi, kecepatan kompresi, ventilasi, return of spontaneous circulation (ROSC) dan meminimalisas interupsi, dari 25 responden memiliki kemampuan dengan kategori kurang dalam melakukan resusitasi jantung paru (RJP) sebelum dilakukan pelatihan. setelah dilakukan pelatihan, menunjukkan bahwa 22 responden dari total 25 responden memiliki kemampuan dengan kategori baik dalam

melakukan resusitasi jantung paru (RJP).

BAB 5

PEMBAHASAN

5.1 Pengetahuan Masyarakat dalam Melakukan RJP di Luar Rumah Sakit

Berdasarkan *review* dari delapan artikel diketahui bahwa terdapat enam artikel dengan tujuan yang sama yaitu untuk mengetahui pengetahuan orang awam dalam melakukan pertolongan pertama pada kasus henti jantung. Empat artikel menunjukkan bahwa paling banyak responden melakukan CPR kepada keluarga mereka dan dapat melakukan kompresi dengan baik, artikel pertama dengan jumlah presentase 30%, artikel ketiga dengan jumlah presentase 35,6%, artikel keempat dengan presentase 88,3%, dan artikel ke lima dilakukan pada anggota keluarga yaitu pasangan mereka dengan presentase 2,06%, (Alhussein, et al., 2021; Qara, Alsulimani, M. Fakeeh, & H. Bokhary, 2018; Jarrah, Judeh, & AbuRuz, 2018 ; Teng, Yunxuan Li, Xu, & Chen, 2020). Penelitian yang dilakukan Mekonnen & Muhye, (2020) menunjukkan bahwa tingkat pengetahuan yang baik tentang bantuan hidup dasar ditemukan sekitar 44,4% di antara peserta non-medis dan mereka yang tinggal di perkotaan lebih berpengetahuan 66% daripada di pedesaan. Penelitian yang dilakukan Febriana, Fajarini, & Abdullah, (2018) menunjukkan bahwa pengetahuan siswa dapat dilihat sebelum pelatihan dengan presentase 8,3 % dan setelah pelatihan pengetahuan baik dengan presentase 95,8%.

Hasil penelitian tersebut dapat ditinjau secara teoritis bahwa aspek pengetahuan yang di perlukan masyarakat awam untuk menjadi *bystander*

yaitu, masyarakat mampu meningkatkan kinerja, pengetahuan psikomotorik dan kepercayaan diri jika melakukan pelatihan fokus yang dilakukan setiap enam bulan atau lebih sering (AHA, 2021). Kejadian henti jantung merupakan kondisi kegawatdaruratan yang sering terjadi di luar rumah sakit maupun di dalam rumah sakit. Kejadianya tidak hanya pada usia tua tetapi juga pada usia muda. Resusitasi jantung paru (RJP) merupakan tindakan yang tepat untuk menyelamatkan pasien dengan henti jantung (Ahsan, Rachmawati, & Firman, 2020). Pemberian pelatihan RJP ini dapat dilakukan pada usia muda dan tua karena merupakan hal yang sangat penting dan bermanfaat bagi peningkatan jumlah orang yang terlatih dalam penanganan pertolongan pertama sehingga dapat menjadi *bystander* di lingkungannya masing-masing. Resusitasi jantung paru tidak hanya dilakukan oleh tenaga medis, tetapi masyarakat yang sudah terlatih dan mampu memberikan pertolongan sampai tenaga medis datang ke lokasi korban henti jantung (Febriana, Fajarini, & Abdullah, 2018).

Berdasarkan *review* didapatkan bahwa, masyarakat yang mendapatkan pelatihan RJP memiliki tingkat pengetahuan yang tinggi terhadap cara melakukan RJP yang benar daripada yang belum mendapatkan pelatihan. Semua artikel mendapatkan hasil yang sama, yaitu terdapat peningkatan pengetahuan pada masyarakat setelah dilakukan pelatihan tentang resusitasi jantung paru (RJP). Sebagian besar dari masing-masing artikel disepakati bahwa resusitasi jantung paru (RJP) adalah salah satu yang paling penting metode yang tersedia untuk menyelamatkan hidup

pasien jantung dan diperlukan pelatihan dalam meningkatkan kinerja RJP.

5.2 Kemampuan Masyarakat dalam Melakukan RJP di Luar Rumah Sakit

Hasil dari dua artikel mengatakan bahwa kemampuan masyarakat sebelum diberikan pelatihan mengenai RJP masih kurang dan kemampuan masyarakat setelah diberikan pelatihan mengenai RJP dikategorikan baik. Penelitian yang dilakukan oleh Prima Dewi K., et al (2019) menunjukkan bahwa 25 responden memiliki kemampuan dengan kategori kurang dalam melakukan resusitasi jantung paru (RJP) sebelum dilakukan pelatihan dan 22 responden dari total 25 responden memiliki kemampuan dengan kategori baik dalam melakukan resusitasi jantung paru (RJP) setelah dilakukan pelatihan RJP. Penelitian yang dilakukan oleh Nuvitasari, M., Jainurakhma. J., Muhammad, Z. (2020) menunjukkan bahwa dari 35 responden, seluruh responden memiliki kemampuan dengan kategori baik setelah diberi pelatihan mengenai RJP. Pelatihan ini bertujuan untuk meningkatkan kemampuan dan pemahaman peserta dalam mengenali tanda dan gejala awal serangan jantung dan pertolongan CPR yang berkualitas. Pada kedua artikel ini sebagian besar responden berusia kurang dari 36 tahun sebanyak.

Hasil penelitian tersebut dapat ditinjau secara teoritis bahwa usia sangat berpengaruh terhadap kemampuan menerima informasi tentang penanganan henti jantung di luar rumah sakit. Seseorang yang berada dalam kategori dewasa awal sangat mampu menerima atau mempelajari hal-hal baru dan kemampuan mengingat lebih baik. Tingkat kemampuan yang ada pada setiap orang dipengaruhi oleh pengetahuan yang dimiliki (Jainurakhma,

Soleh, Sita, & Astuti, 2020). Kondisi henti jantung ini sering menimbulkan kecemasan bagi masyarakat sekitar dan kurangnya kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP). Kemampuan RJP sangat penting untuk meningkatkan peluang hidup pada pasien henti jantung (Jainurakhma, Soleh, Sita, & Astuti, 2020).

Seluruh responden memiliki kemampuan yang kurang sebelum diberi pelatihan, yang dimaksud dengan kemampuan kurang yaitu masyarakat hanya mengetahui bahwa jika ada seseorang mengalami henti jantung tindakan yang diberikan yaitu resusitasi jantung paru sedangkan langkah-langkah dan tindakannya responden tidak mengetahuinya. Masyarakat sebagai *bystander* ketika menemui orang dengan henti jantung mereka tidak mampu memberikan resusitasi jantung paru (RJP) karena mereka tidak mengetahui apa yang harus dilakukan, salah satu tindakan yang dapat mereka lakukan yaitu meminta bantuan kepada petugas kesehatan (Darwati & Setianingsih, 2020). Tindakan yang dilakukan yaitu terkait bagaimana cara mengamankan lokasi kejadian, mengkaji respon korban, cek nadi karotis dan langkah-langkah melakukan resusitasi jantung paru (RJP).

Hasil penelitian menunjukkan bahwa ada pengaruh pelatihan kegawatdaruratan henti jantung terhadap kemampuan masyarakat dalam melakukan CPR yang berkualitas. Jadi menurut peneliti, kemampuan dalam melakukan resusitasi jantung paru sangat penting, untuk meningkatkan angka keberhasilan dalam menyelamatkan korban henti jantung. Dari dua artikel tersebut didapatkan hasil yang sama, yaitu pelatihan berpengaruh terhadap

kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP). Kemampuan masyarakat meningkat ketika setelah diberi pelatihan tentang tindakan resusitasi jantung paru (RJP)

5.3 Hubungan Pengetahuan dan Kemampuan Masyarakat dalam Melakukan Resusitasi Jantung Paru (RJP) pada OHCA

Hasil dari delapan artikel yang dilakukan *review* untuk mengetahui hubungan pengetahuan dan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada OHCA. Dari delapan artikel tersebut, terdapat enam artikel yang menyatakan bahwa peserta yang melakukan pelatihan CPR memiliki pengetahuan lebih tinggi daripada yang tidak melakukan pelatihan CPR. Populasi dalam artikel sebagian besar adalah penduduk pria dan wanita yang berusia lebih dari 18 tahun, dan hanya 1 artikel usia 14-16 tahun. Hasil penelitian menurut Alhussein, et al., (2021) perlunya keterlibatan masyarakat dalam pemahaman untuk memberikan tindakan CPR yang efektif dan aman. Hasilnya mengungkapkan bahwa di antara semua peserta sadar kami, 30% bersedia untuk melakukan bentuk CPR untuk anggota keluarga mereka ($P < 0,001$), kemudian dianalisis menggunakan *chi-square analysis and Fisher's exact test*, didapatkan hasil tingkat pendidikan dan status pekerjaan menunjukkan hubungan yang signifikan dengan pengetahuan ($P < 0,001$).

Artikel Mekonnen & Muhye, (2020) analisis menggunakan *Uji Shapiro–Wilk* didapatkan hasil, di antara variabel yang dimasukkan ke dalam regresi logistik berganda analisis umur, jenis kelamin, tempat tinggal,

pelatihan tentang bantuan hidup dasar, pernah mendengar tentang bantuan hidup dasar, dan paparan dengan orang yang membutuhkan bantuan hidup dasar adalah signifikan tidak dapat dikaitkan dengan skor pengetahuan ($P=0,001$). Artikel Qara, Alsulimani,, M. Fakeeh,, & H. Bokhary, (2018) Orang-orang yang menerima pelatihan menunjukkan tingkat yang lebih tinggi untuk mengetahui yang benar jawaban tentang tingkat kompresi dada / buatan yang tepat ventilasi selama CPR, di mana kompresi dada harus diterapkan, tingkat kompresi dada, dan kekuatan yang harus diterapkan selama kompresi dada ($p < 0,0001$, $p < 0,0001$, dan $p = 0,004$, masing-masing). Dalam penelitian ini sebagian besar CPR dilakukan kepada keluarga, kemudian diikuti oleh teman dan orang asing dengan presentase 35,8%. Kemudian dianalisis menggunakan *chi-kuadrat tes*, didapatkan hubungan yang signifikan antara penerapan CPR dan memiliki pelatihan CPR.

Artikel Jarrah, Judeh, & AbuRuz, (2018) bahwa di antara semua peserta sadar kami, 30% bersedia untuk melakukan bentuk CPR untuk anggota keluarga mereka (88,3%) kemudian dianalisis menggunakan *A chi-squared test* didapatkan hasil yaitu, peserta yang mendapatkan pelatihan CPR memiliki tingkat pengetahuan yang tinggi terhadap cara melakukan CPR yang benar daripada yang belum mendapatkan pelatihan. Terkait tanda-tanda henti jantung, evaluasi kesadaran, pernafasan dan sirkulasi ($P=0,001$).

Artikel Teng, Yunxuan Li, Xu, & Chen, (2020) 79% orang yang tidak mengikuti kursus pelatihan menunjukkan bahwa mereka belum pernah mendengar kursus CPR. Responden kelompok 1 memiliki lebih sedikit

paparan pelatihan CPR dibandingkan rekan-rekan mereka di kelompok 2 didapatkan hasil Perbedaan hubungan pasien dengan penyakit jantung, jumlah kunjungan klinik dan operasi jantung tidak memiliki dampak signifikan pada pelatihan CPR pada kelompok 1 ($p > 0,05$).

Artikel Febriana, Fajarini, & Abdullah, (2018) dengan menggunakan analisis *Uji Wilcoxon*, didapatkan hasil bahwa terdapat pengaruh pelatihan resusitasi jantung paru terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karanganyar Klaten $p = 0,000$ ($p < 0,05$) sehingga penelitian ini dapat menambah wawasan responden dalam menangani korban henti jantung. Mereka yang telah menerima pelatihan menunjukkan tingkat yang lebih tinggi untuk mengetahui prosedur yang benar dari evaluasi tingkat kesadaran, pernapasan dan sirkulasi.

Artikel Nurvitasari, Jainurakhma, & Muhammad, (2020) didapatkan hasil terdapat pengaruh yang signifikan dalam pelatihan manajemen henti jantung terhadap kemampuan melakukan CPR kualitas tinggi ($P < 0,001$). Kemudian dianalisis menggunakan uji normalitas *Shapiro Wilk*. Hal ini sejajar dengan Artikel Kusumawati & Jaya, (2019) didapatkan hasil bahwa ada pengaruh simulasi Resusitasi Jantung Paru terhadap kemampuan penatalaksanaan resusitasi jantung paru (RJP) Anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda Jatim yang dianalisis menggunakan uji statistik *wilcoxon* dengan tingkat signifikansi nilai $P = 0,000$.

Hasil penelitian tersebut dapat ditinjau secara teoritis bahwa kondisi henti jantung ini dapat terjadi dimana saja dan kapan saja tanpa mengenal usia

dan jenis kelamin. Solusi atas masalah tersebut adalah dengan meningkatkan peran *bystander* dalam melakukan resusitasi jantung paru (RJP). Setiap individu harus memiliki pengetahuan untuk meningkatkan kemampuan resusitasi jantung paru (RJP) di luar rumah sakit, sehingga angka kematian pada kasus henti jantung berkurang. Pemberian tindakan RJP yang dilakukan oleh *bystander* terbukti meningkatkan angka kelangsungan hidup pasien. Selain itu, dijelaskan juga bahwa penolong atau pemberi RJP harus memiliki pengetahuan dan kemampuan, kemampuan tersebut harus selalu disiapsiagakan dan diperbaharui sesuai dengan perkembangan ilmu yang ada untuk meningkatkan pemberian RJP (Widyarani, 2018).

Hanya sebagian pasien henti jantung yang menerima RJP dari masyarakat yang ada di tempat kejadian secara langsung, hal ini dikarenakan akibat kurangnya kemampuan masyarakat terkait tindakan RJP yang harusnya dilakukan kepada pasien di tempat kejadian (Kushayati, Murtiyan, & Suidah, 2020). Salah satu upaya dalam peningkatan kemampuan pemberian RJP adalah dengan melakukan pelatihan. Pemberian pelatihan akan meningkatkan kemampuan masyarakat dalam pemberian RJP pada pasien sehingga mampu memberikan dampak yang signifikan dalam meningkatkan *survival rate* pada pemberian RJP (Darwati & Setianingsih, 2020).

Sehingga dapat di simpulkan bahwa pengetahuan dapat meningkatkan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit. Tanpa ada pengetahuan kita sebagai *bystander* tidak akan mampu melakukan resusitasi jantung paru (RJP).

Pengetahuan merupakan salah satu faktor yang dapat mempengaruhi kemampuan seseorang dalam melakukan RJP, sehingga saling berhubungan untuk meningkatkan kualitas *bystander* dalam melakukan RJP yang baik dan benar. Untuk meningkatkan pengetahuan dan kemampuan masyarakat dalam melakukan RJP di luar rumah sakit, diharapkan masyarakat lebih banyak mengikuti pelatihan dalam melakukan RJP secara berkala, sehingga komplikasi akibat korban henti jantung di luar rumah sakit dapat diminimalisir.

BAB 6

KESIMPULAN DAN SARAN

6.1 Kesimpulan

Berdasarkan hasil analisis dari beberapa artikel dapat ditarik kesimpulan bahwa :

1. Pengetahuan resusitasi jantung paru (RJP)

Dari delapan artikel terdapat enam artikel yang menyatakan bahwa tingkat pengetahuan masyarakat dalam melakukan RJP di luar rumah sakit setelah diberi pelatihan dikategorikan baik. Dari enam artikel terdapat empat artikel yang menyatakan bahwa RJP dilakukan kepada keluarga dan dapat melakukan kompresi yang baik dengan presentase 66,6%.

2. Kemampuan resusitasi jantung paru (RJP)

Dari delapan artikel terdapat dua artikel yang menyatakan adanya perbedaan sebelum dan sesudah melakukan pelatihan resusitasi jantung paru (RJP) untuk meningkatkan kemampuan masyarakat dalam menangani kasus henti jantung di luar rumah sakit dengan presentase 25%. Pada kedua artikel ini responden berusia kurang dari 36 tahun, dan semua responden dikategorikan baik setelah mendapatkan pelatihan.

3. Hubungan Pengetahuan dan Kemampuan Masyarakat dalam melakukan RJP di Luar Rumah Sakit

Hasil dari tujuh artikel yang telah direview, pengetahuan dapat meningkatkan kemampuan masyarakat dalam melakukan resusitasi jantung paru (RJP) pada kasus henti jantung di luar rumah sakit.

6.2 Saran

Berdasarkan hasil penelitian diatas maka peneliti menyarankan beberapa hal sebagai berikut:

1. Bagi Peneliti

Dari hasil *literature review* penulis memperoleh wawasan dan pengetahuan tentang Resusitasi Jantung Paru terhadap pengetahuan dan kemampuan menolong korban Henti Jantung pada orang awam.

2. Bagi Masyarakat

Dari hasil *literature review* dapat diperoleh pengetahuan dan kemampuan tentang resusitasi jantung paru terhadap henti jantung pada orang awam diharapkan menjadi bekal pengetahuan dan kemampuan bagi responden dan mengaplikasikan di lingkungan masyarakat luas.

3. Bagi Tenaga Kesehatan

Bagi tenaga kesehatan diharapkan dapat menjadi bahan masukan atau sumber informasi serta dasar pengetahuan bagi para tenaga kesehatan dalam upaya pelatihan RJP

4. Bagi Instansi Pendidikan

Dari hasil *literature review* diharapkan bisa menjadi bahan masukan bagi penelitian lain khususnya mahasiswa Universitas dr. Soebandi Jember dan menambah referensi informasi di kalangan akademis.

5. Bagi Peneliti Selanjutnya

Bagi peneliti selanjutnya diharapkan dapat melakukan penelitian langsung (*original research*) terhadap masyarakat untuk mengetahui secara langsung pengetahuan dan kemampuan masyarakat dalam melakukan RJP.

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ORIGINAL RESEARCH

Open Access



Knowledge of non-healthcare individuals towards cardiopulmonary resuscitation: a cross-sectional study in Riyadh City, Saudi Arabia

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Abstract

Background: Most sudden cardiac arrests occur at home, with low rates of bystander cardiopulmonary resuscitation being performed. We aimed to assess knowledge of cardiopulmonary resuscitation among individuals in Riyadh City, Saudi Arabia, who are not involved in health care.

Methods: A community-based cross-sectional study was conducted between January and February 2020 in 4 different areas in Riyadh City: North, South, East, and West. The participants were surveyed using a validated self-administered questionnaire. The Statistical Package for Social Sciences version 25.0 was used for inferential statistics and binary logistic regression analysis.

Results: A total of 856 participants completed the questionnaire, 51.8% were unaware of cardiopulmonary resuscitation. Only 4.4% of the participants had attended a formal cardiopulmonary resuscitation training course, 5.1% were campaign attendees, and 38.7% acquired their experience through the media. Having a higher level of education was positively associated with having knowledge of cardiopulmonary resuscitation. The main concern among attendees of cardiopulmonary resuscitation training courses and campaigns was legal issues, whereas inadequate knowledge was the major barrier for those who had learned about cardiopulmonary resuscitation through the media.

Conclusion: The level of knowledge of cardiopulmonary resuscitation among non-health care individuals in Riyadh City was found to be insufficient. Therefore, coordinated efforts among different authorities should be considered to implement a structured strategy aiming to increase awareness and knowledge of cardiopulmonary resuscitation among non-health care individuals.

Keywords: Cardio-pulmonary resuscitation, Basic Cardiac Life Support, CPR, Knowledge, Resuscitation

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Background

Despite increasing efforts in prevention and treatment, sudden cardiac arrest (SCA) remains a global health issue. However, the incidence of SCA varies according to the region [1]. In the USA, the annual incidence of mortality from out-of-hospital cardiac arrest (OHCA) is estimated to be 90%, causing 356,000 deaths annually [2]. Locally, 74% of SCAs occurred at home with low rates of bystander cardiopulmonary resuscitation (CPR) being performed, and the family members are almost always at the scene before the arrival of emergency medical services (EMS) [3].

The beneficial effects of CPR depend entirely on the knowledge and performance of the bystanders in determining the survival probabilities [4]. Increased public education and improved programme quality and access to public automatic external defibrillators (AEDs) are associated with better outcomes [5–7].

In different community settings, numerous studies have been conducted to assess the CPR-related knowledge and training status of individuals not involved in health care. A Saudi study based in Jeddah found that only 28.7% of respondents stated that they had received CPR training before, compared to 25.6% in China, 29% in Jordan, 40.7% in Izmir and 55.7% in Australia [8–12]. Notably, the highest percentages were reported in countries where there are various efforts to increase CPR training, such as in Canada and Germany, with percentages of 64% and 83.2%, respectively [13, 14]. Furthermore, numerous countries have linked driver license application with mandatory Basic Life Support (BLS) training courses, as in Slovenia and Japan [4, 15]. However, there are a variety of barriers associated with performing CPR; a lack of knowledge and confidence, a fear of harming the victim, and legal consequences make respondents less likely to perform CPR on a stranger [13, 16]. With respect to a family member, 94.2% are willing to perform CPR [8].

In Riyadh City, there is a paucity of data regarding knowledge of and attitudes towards CPR, with most of the published studies focusing on different groups of medical and non-medical populations. In the current study, we primarily aimed to assess the CPR-related knowledge of individuals not involved in health care in Riyadh City. Our secondary aim was to assess the willingness of the community to perform CPR and to address the barriers associated with performing CPR.

Methods

Study design

A community-based cross-sectional study was conducted over a 2-month period between January and February 2020. The targeted population was individuals not involved in health care who were from different areas of

Riyadh City, Saudi Arabia. All individuals were at least 18 years of age; both males and females, those of both Saudi and non-Saudi nationality and those living in Riyadh City were included. Individuals who were younger than 18 years of age or who were studying or graduating from any medical specialty were excluded because their programmes had mandatory BLS courses.

Sampling and sample size

The study sample size was calculated based on the study conducted in Jeddah, Saudi Arabia [8], which reported that only 32.7% of their respondents knew how to give a chest compressions. With a prevalence of 32.7%, we used a 95% CI with 5% as a margin of error, which gave a minimal sample size of 339. The inter-cluster variance was controlled by multiplying by the design effect, equal to 2.5. Hence, the total number needed for conducting the survey was $n = 848$. An equal proportion of $n = 212$ surveys from each of the distinguished areas were required to ensure that the sample was representative of the total population.

Data collection tool

Data were collected using a self-administered questionnaire that was adopted from the existing literature addressing the same research question [8, 11]. Some of the questions were rephrased. The modified questionnaire was based on the 2015 American Heart Association guidelines [17]. Content validity analysis of the questionnaire was performed by an expert panel from the fields of emergency medicine and cardiology. The Statistical Package for Social Sciences (SPSS) 25.0 software was used for determining the reliability with Cronbach's alpha ($r = 0.70$) for the pilot sample. The questionnaire consisted of 26 items. The first section captured the sociodemographic characteristics of the participants (age, gender, residential area, level of education, and occupational status). The other sections assessed their knowledge of CPR, ability to identify the signs and recognition of SCA victims, previous SCA experiences, willingness and barriers to perform CPR, application of CPR and Saudi Red Crescent number. A medical translation specialist translated the questionnaire into Arabic. It was back-translated to English by another medical translation expert to ascertain the accuracy and precision of the translation. Forty such participants who understood both Arabic and English equally responded to both versions during the pilot testing of the questionnaire.

Data collection

Riyadh City was divided into four different areas (North, South, East, and West) and clustered stratified sampling was chosen. Each area was visited by one dedicated research coordinator who was familiar with the inclusion

and exclusion criteria; no intervention occurred during participants' completion of the questionnaire, and the participants were provided assurance of confidentiality. We recruited participants from shopping centers, universities, social centres, walkaways, parks, gyms, coffee shops, and supermarkets to ensure participant diversity. The study centers were chosen randomly and were similar in the four selected areas, and the participants from each cluster were recruited using convenience sampling.

Data management and analysis

The study was designed to present all the data in the nominal and ordinal structure. Data validation was performed in Microsoft Excel 16.0, and the clean data were used in the statistical analysis. All the data were described as frequencies and frequency percentages. Participants' knowledge source was associated with all other study variables pertinent to their knowledge and indicated diverse and non-overlapping responses. All the associations were measured by chi-square analysis, and Fisher's exact test was applied wherever the expected frequency of a particular cell was below 5. A binary logistic regression was applied to investigate the relationship between CPR knowledge and demographic variables. All inferences were drawn at 95% CI. Statistical analyses were performed with SPSS 25.0 software. *p* values < 0.05 were considered statistically significant.

Results

The surveyed sample of 856 participants was recruited from 4 different residential areas. The sociodemographic characteristics of the participants are presented in Table 1. A total of 54.2% of the study sample was composed of males, and 54.4% was composed of those aged 25–44 years, which was expected because this age group represents the majority of the population according to the Saudi General Authority for Statistics [18].

Participants were divided depending on their awareness of CPR; those who were unaware of CPR (51.8%) were precluded from the CPR knowledge questions analysis. The participants with awareness (48.2%) were subdivided into 3 groups as per their reported source of attainment of CPR knowledge: 4.4% of participants received training through attending a formal CPR course, whereas 5.1% attended campaigns run by health care institutions, and 38.7% acquired their experience through different social media networks, medical-related series and movies. The educational backgrounds of formal CPR training course attendees were bachelor's degree holders (55.3%), high school (18.4%), postgraduate (15.8%), and diploma certified (10.5%). Table 2 shows the knowledge sources of the participants.

Educational level and occupational status depicted in Table 3 show a significant association with knowledge.

Table 1 Sociodemographic characteristics of the study participants

Characteristics		N = 856	%
Age	18–24	258	30.1
	25–34	297	34.7
	35–44	169	19.7
	45–54	88	10.3
	55–64	44	5.1
Gender	Male	464	54.2
	Female	392	45.8
Area of residence	North Riyadh	212	24.8
	South Riyadh	217	25.3
	East Riyadh	212	24.8
	West Riyadh	215	25.1
Educational level	Elementary school	8	0.9
	Middle school	32	3.7
	High school	379	44.3
	Diploma	57	6.7
	Bachelor degree	332	38.8
	Postgraduate	48	5.6
Occupational status	Student	152	17.8
	Employee	482	56.3
	Self employed	42	4.9
	Housewife	86	10
	Retired	43	5
	Unemployed	51	6

However, age, gender, and residential area were not significant. With regard to occupational status, housewives were less likely to have a positive attitude towards CPR than were students (OR = 0.23; 95% CI = 0.12–0.46; *p* < 0.001). In addition, postgraduate qualified participants were more likely to have knowledge of CPR than were participants with an elementary-level education (OR = 7.37; 95% CI = 1.29–42.13; *p* = 0.025).

Of all those surveyed, 51.8% listed the absence of a pulse. The absence of breathing was identified by 48.1% and a loss of consciousness by 44.9%. Six percent of the participants failed to identify any of the listed signs of SCA. In terms of recognition of SCA victims, the three different aware groups were compared with respect to the evaluation of consciousness and breathing. Among

Table 2 Cardiopulmonary resuscitation knowledge source

Source of knowledge	N	(%)
Formal cardiopulmonary resuscitation course	38	4.4
Campaigns presented by health care institutions	44	5.1
Media sources (internet, television)	331	38.7
Unaware of cardiopulmonary resuscitation	443	51.8

Table 3 Binary logistic regression analysis of the factors associated with CPR knowledge

Characteristic	Description	CPR aware	Exp (B)	95% C.I. for EXP(B)		p value	Overall p value
				Lower	Upper		
Age	18–24	120 (29.2)	1	1	1	0.374	0.784
	25–34	150 (36.5)	1.41	0.92	2.15	0.113	
	35–44	76 (18.5)	1.15	0.7	1.89	0.576	
	45–54	44 (10.7)	1.66	0.91	3.03	0.098	
	55–64	21 (5.1)	1.28	0.46	3.59	0.637	
Gender	Male	226 (55.0)	1	1	1	1	0.659
	Female	185 (45.0)	1.09	0.79	1.49	0.602	
Residential area	North	111 (27.0)	1	1	1	0.316	0.132
	South	107 (26.0)	1.42	0.93	2.18	0.106	
	East	104 (25.3)	1.12	0.74	1.69	0.587	
	West	89 (21.7)	1.02	0.66	1.58	0.92	
Level of education	Elementary school	2 (5)	1	1	1	< 0.001	< 0.001
	Middle school	8 (1.9)	0.92	0.15	5.65	0.924	
	High school	149 (36.3)	1.62	0.31	8.42	0.568	
	Diploma	29 (7.1)	3.08	0.56	16.99	0.198	
	Bachelor degree	189 (46.0)	3.94	0.76	20.41	0.102	
	Postgraduate	34 (8.3)	7.37	1.29	42.13	0.025	
Occupational status	Student	89 (21.7)	1	1	1	< 0.001	0.008
	Employee	224 (54.5)	0.37	0.23	0.59	< 0.001	
	Self employed	24 (5.8)	0.53	0.23	1.19	0.123	
	Housewife	29 (7.1)	0.23	0.12	0.46	< 0.001	
	Retired	20 (4.9)	0.37	0.13	1.05	0.062	
	Unemployed	25 (6.1)	0.39	0.2	0.78	0.008	
	Constant		0.58			0.54	

CI confidence interval, CPR cardiopulmonary resuscitation

all of the participants with CPR awareness ($n = 413$), 27.6% and 29% could correctly assess consciousness and breathing, respectively. The evaluation rate of consciousness and breathing was found to be higher among those who received training through campaigns (31.8% and 43.2%), respectively, with statistical significance in terms of breathing evaluation ($p = 0.037$).

When all participants were asked about the correct response in approaching a SCA victim, it was observed that those who attended a formal CPR training course

had the highest percentage of reporting the need to check consciousness and breathing, start CPR, and call EMS, followed by other groups ($p < 0.001$). The majority of unaware participants (54%) stated that they would not intervene. Table 4 summarizes the participants' approach in the case of SCA.

Table 5 reveals a statistically significant difference in terms of applying CPR among those who had received CPR training ($p < 0.001$); 50% of those who attended a formal CPR course knew how to apply all 3 CPR

Table 4 Association between approaching a victim in SCA and CPR knowledge source among all participants

Variables	Source of knowledge				p value
	Formal CPR course n (%)	Campaign n (%)	Median (%)	Unaware of CPR n (%)	
Checking consciousness level	22 (57.9)	22 (50.0)	27 (8.2)	37 (8.4)	< 0.001
Checking breathing	35 (92.1)	38 (86.4)	134 (40.5)	95 (21.4)	< 0.001
Starting a CPR	29 (76.3)	31 (70.5)	34 (10.3)	0 (0.0)	< 0.001
Calling EMS	28 (73.7)	28 (63.6)	190 (57.4)	185 (41.8)	< 0.001
Watching only	0 (0.0)	0 (0.0)	113 (34.1)	239 (54)	< 0.001

CPR cardiopulmonary resuscitation, SCA sudden cardiac arrest, EMS emergency medical services

Table 5 Association between practical application of CPR and knowledge source among aware participants

Variables	Source of knowledge			p value
	Formal CPR course n (%)	Campaign n (%)	Media n (%)	
Procedures				
Opening an airway	21 (55.3)	21 (47.7)	32 (9.7)	< 0.001
Give mouth-mouth ventilation	25 (65.8)	24 (54.5)	28 (8.5)	< 0.001
Starting chest compression	36 (94.7)	40 (90.9)	48 (14.5)	< 0.001
Giving mouth to mouth-start chest compression	24 (63.2)	22 (50.0)	19 (5.7)	< 0.001
Those knowing three procedures	19 (50.0)	16 (36.4)	9 (2.7)	< 0.001
I do not know	0 (0.0)	0 (0.0)	257 (77.6)	< 0.001
Which one of the following choices is the correct location for chest compressions in CPR?				
Upper part of the chest	7 (18.4)	6 (13.6)	37 (11.2)	< 0.001
Middle part of the chest	19 (50.0)	28 (63.6)	93 (28.1)	
Lower part of the chest [†]	12 (31.6)	10 (22.7)	31 (9.4)	
I do not know	0 (0.0)	0 (0.0)	170 (51.4)	
What is the ratio of chest compressions to mouth-to-mouth ventilation in CPR?				
5:1	11 (29)	18 (40.9)	9 (2.7)	< 0.001
15:2	16 (42)	15 (34.1)	6 (1.8)	
30:2 [†]	11 (29)	11 (25)	7 (2.1)	
I do not know	0 (0.0%)	0 (0.0%)	309 (93.4)	
What is the rate of chest compressions in CPR?				
150 per min	4 (10.5)	3 (6.8)	5 (1.5)	< 0.001
100–120 per min [†]	11 (28.9)	12 (27.3)	12 (3.6)	
50 per min	23 (60.5)	29 (65.9)	17 (5.1)	
I do not know	0 (0.0)	0 (0.0)	297 (89.7)	
What is the length of strength that should be given during chest compressions in CPR?				
A depth of 1–2 cm	12 (31.6)	21 (47.7)	9 (2.7)	< 0.001
A depth of 5–6 cm [†]	21 (55.3)	22 (50.0)	24 (7.3)	
A depth of 6–10 cm	5 (13.2)	1 (2.3)	4 (1.2)	
I do not know	0 (0.0)	0 (0.0)	294 (88.8)	

CPR cardiopulmonary resuscitation

†Correct answer

procedures. Regarding the application of CPR in terms of the proper rate of compression, the ratio, the location of compression, and the force that must be applied during compression, those who attended a formal CPR course showed a higher rate of correct answers than did those in the other groups ($p < 0.001$).

In the case of SCA, the results revealed that among all of our aware participants, 36% were willing to perform CPR for their family members ($p < 0.001$), followed by 24.2% who were willing to perform CPR for a friend, 21.5% for a neighbour, and 15.7% for a stranger. However, 4.6% stated that they would not intervene in the case of SCA. Nonetheless, the majority of participants who gained their experience through media sources stated that they do not feel confident in performing CPR. Legal issues were the most common barrier preventing those who received

hands-on training from performing CPR on a stranger. Breaking a rib bone was the most common concern regarding the application of CPR on a family member or a friend ($p = 0.002$). Inadequate knowledge and skills related to CPR remain the main barriers that prevent participants who gained their experience through media from performing CPR ($p < 0.001$). Further details for willingness and barriers to perform CPR are presented in Table 6.

Among all of the participant, only 45.2% of all participants were aware of the current Saudi Red Crescent number (997), as the results revealed a significant association between positive CPR awareness and recognizing the Saudi Red Crescent number ($p < 0.001$). There was an association between having attended a campaign and selecting the correct Saudi Red Crescent number, as 77.3% of them selected it correctly.

Table 6 Association between willingness and barriers of performing CPR and CPR knowledge source among aware participants

Variables	Source of knowledge			p value
	Formal CPR course n (%)	Campaign n (%)	Media n (%)	
In case of SCA, who would you perform CPR for?				
A family member	30 (78.9)	34 (77.3)	85 (25.7)	< 0.001
A friend	25 (65.8)	26 (59.1)	49 (14.8)	< 0.001
A neighbour	23 (60.5)	24 (54.5)	42 (12.7)	< 0.001
A stranger	20 (52.6)	22 (50.0)	23 (6.9)	< 0.001
I know how to perform CPR, but will not do it	7 (18.4)	7 (15.9)	5 (1.5)	< 0.001
I do not feel confident to perform CPR	0 (0.0)	0 (0.0)	274 (82.8)	< 0.001
What barriers may stop you from performing CPR for a family member or a friend?				
Breaking a rib bone	16 (42.1)	18 (40.9)	74 (22.4)	0.002
Causing an internal organ damage	10 (26.3)	14 (31.8)	45 (13.6)	0.002
Legal issues	4 (10.5)	4 (9.1)	16 (4.8)	0.154
Stopping heart from work	5 (13.2)	8 (18.2)	26 (7.9)	<0.001
Infection	4 (10.5)	3 (6.8)	5 (1.5)	0.003
I have no fear, I will perform CPR	18 (47.4)	16 (36.4)	14 (4.2)	<0.001
Inadequate knowledge and skill of CPR	0 (0.0)	1 (2.3)	277 (83.7)	< 0.001
What barriers may stop you from performing CPR for a stranger?				
Breaking a rib bone	8 (21.1)	13(29.5)	68 (20.5)	0.393
Causing an internal organ damage	9 (23.7)	15 (34.1)	41 (12.4)	< 0.001
Stopping heart from work	7 (18.4)	11 (25.0)	18 (5.4)	< 0.001
Legal issues	16 (42.1)	15 (34.1)	72 (21.8)	0.008
Infection	4 (10.5)	5 (11.4)	15 (4.5)	0.054
I have no fear, I will perform CPR	14 (36.8)	15 (34.1)	9 (2.7)	< 0.001
Inadequate knowledge and skill of CPR	0 (0.0)	1 (2.3)	275 (83.1)	< 0.001

CPR cardiopulmonary resuscitation, SCA sudden cardiac arrest

Discussion

The initiation of CPR before the arrival of professional help doubles the 30-day survival rate, which indicates the need for community involvement in understanding the practical application of CPR to provide resuscitation effectively and safely [19, 20]. We aimed to assess the CPR-related knowledge of individuals not involved in health care and their willingness to perform it and to uncover the barriers preventing them from performing CPR. Compared to other studies on this topic, our study is unique, as it sub-grouped the aware participants and compared them depending on the sources from which they received their knowledge. Other studies were limited to specific regions, conducted their surveys by email or social media or included health care individuals.

In our study, we found a poor level of awareness of CPR based on participant reports; 51.8% had no awareness of CPR. In comparison, only 10% of Australian and Chinese populations had never heard of CPR [9, 12]. However, the other half of our participants (48.2%) acquired their knowledge through different sources. Based on the subgroup analysis, 4.4% received their training

through a formal CPR course, 5.1% through campaigns, and 38.7% through the media. The training rate in Riyadh City seemed higher than that in Hong Kong (21%), Jeddah (28.7%), Jordan (29%), and Izmir (40.3%) [8, 10, 11, 21]. In contrast, our rate of training was lower than that of countries where CPR courses are a mandatory requirement. In Slovenia, 69.4% of the respondents had received previous CPR training, which was associated with mandatory training during the acquisition of driver's licenses [4]. In Denmark, multinational initiatives were taken to increase the rate of bystander CPR, and after implementing different strategies, the rate of bystander CPR increased significantly from 21.1% in 2001 to 44.9% in 2010 [22]. High percentages of trained individuals were also reported in Scotland (52%) [23], Australia (56%) [12], the UK (59%) [24], Canada (64%) [13], and the USA (65%) [25].

Participants showed some logical awareness of the signs of SCA. A high proportion of the participants stated that the absence of a pulse, breathing, and the loss of consciousness were the most common signs of SCA (51.8%, 48.1%, and 44.9%, respectively). Our findings

were consistent with those of Özbilgin et al., as 60.7% selected the absence of a pulse, 49.3% selected the absence of breathing, and 40.7% selected the loss of consciousness [11]. On the other hand, our results were higher than those reported in Jeddah, as 24.7%, 36.8%, and 40.7% of their respondents could properly identify signs of SCA, absence of pulse, breathing, and loss of consciousness, respectively [8]. When participants were asked about their recognition of an SCA victim, among all of the aware participants, 27.6% and 29% could correctly assess consciousness and breathing, respectively. Overall, our findings were higher than those of Jeddah City, where among those who received training, only 12.8% and 20.2% could correctly assess consciousness and breathing, respectively [8]. Similarly, poor results were reported in Izmir and Jordan as well [10, 11]. However, those who acquired their training through campaigns had a higher set of skills in recognizing an unconscious victim (31.8%) and identifying the correct way to assess breathing (43.2%). The results may reflect the quality of campaigns and the importance of refresher training courses for those who had previously attended a CPR course.

The participants were asked how to approach someone with SCA; the majority of participants (76.3%) who had taken a formal CPR course and 70.5% who were campaign attendees, respectively; ($p < 0.001$) stated that they would start CPR. In contrast, 34.1% of the participants who gained their CPR experience through the media and 54% of those who were totally unaware of CPR stated that they would only watch without intervening ($p < 0.001$). In our study, 14.3% of all participants had encountered a situation that required CPR, with most of those victims being a family member. Among those, only 6.5% started CPR. The results indicate the importance of training programmes that encourage individuals not involved in health care to perform CPR in a real-life situation when it is indicated. Among Turkish participants, 18.6% stated that they had previously witnessed SCA, and only 3.6% performed CPR [11]. A lower rate of CPR was also reported in Jordan and Jeddah [8, 10].

With regard to the practical application of CPR according to the American Heart Association guidelines, self-reported answers revealed poor knowledge among aware participants regarding the application of CPR. Among all aware participants, only 15.7% stated that they would perform both chest compression and mouth-to-mouth breathing. However, 10.6% stated that they would perform all 3 procedures. Overall, only 12.8% knew the correct location of compression, and 7% knew the ratio of compressions to ventilation. The percentages of correct responses for rate and depth were 8.4% and 16.2%, respectively. Our participants had the same level of poor knowledge shown in previous studies [10, 11]. However, the rates of correct

answers were found to be significantly higher among the formal CPR course attendees group ($p < 0.001$). Our findings revealed discrepancies among those who gained their experience through the media. This is justified by their different perceptions of having sufficient knowledge based on what they demonstrated from the media. In addition, these devastating results reflect the quality of the theoretical details given in different sources and the necessity of regular high-quality CPR training and refresher courses.

In the case of SCA, numerous studies reported that high percentages of their respondents would begin CPR for their family members [8, 10, 11]. Among all our aware participants, 36% showed no hesitation to perform CPR for their family members, followed by for a friend, neighbor, and finally a stranger. The main reason for a lack of willingness to conduct CPR among those who gained their experience through the media was being unconfident in performing CPR on any of the aforementioned individuals ($p < 0.001$), reflecting the significance of hands-on training in the other groups. However, 4.6% stated that they knew how to perform CPR but would not perform it ($p < 0.001$). There are certain barriers that may affect the willingness of the aware participants to begin CPR. With regard to family members, 11.6% stated that nothing would prevent them from performing CPR ($p < 0.001$), whereas 26.1% had a fear of breaking a rib bone ($p = 0.002$). The most common reason for not conducting CPR on a stranger among formal CPR course attendees and campaign attendees was legal issues 42.1% and 34.1%, respectively. This raises our appeal to local authorities to create a law to encourage the public to step in when indicated, such as the 'good Samaritan law', which is enacted in a number of countries, such as the USA and Korea. The law is enacted to protect individuals from any consequences and offer legal protection when they assist in good faith and deliver medical assistance for strangers in emergencies [26, 27].

A total of 54.8% of all participants were unaware of the current emergency contact number (Saudi Red Crescent number 997). Among the participants, 77.3% of campaign attendees selected the correct answer, 57.9% of formal CPR course attendees, 52.6% of media-obtained participants, and 35.4% of those unaware of CPR. The results revealed that the campaign attendees group were the most aware of the correct number, which might reflect that local campaigns focus on giving the correct Saudi Red Crescent number, while CPR course materials are developed abroad, where the universal emergency service number (911) differs from that used in Saudi Arabia.

This study has some limitations. The status of knowledge of CPR and training skills was based on participants' self-report. In addition, CPR training skills were only tested theoretically, not practically, as the latter was

not feasible for our study participants. Lastly, we did not ask whether the formal CPR course attendees training was recent or not.

Conclusion and recommendations

Our study highlighted the limited knowledge of CPR among individuals in Riyadh City who were not involved in health care. This may have an impact on individuals' ability to act in the case of SCA. Therefore, coordinated efforts among different authorities should be considered to implement a structured strategy aiming to increase awareness and knowledge of CPR. Accessible high-quality CPR courses, incorporate CPR material into educational curricula, in addition to regular hands-on training and refresher courses, could address this issue. Finally, since the media is considered a major source of information for the majority of our aware participants, greater focus on expanding the educational material such as "How to apply hands-on CPR" and guidance to authorized CPR centers near them, and to raise awareness by directed campaigns such as "Why should you learn how to perform CPR" in addition to monitoring and approval of CPR educational content is needed by experts in the field.

Abbreviations

SCA: Sudden cardiac arrest; OHCA: Out of hospital cardiac arrest; CPR: Cardiopulmonary resuscitation; EMS: Emergency medical services; AED: Automated external defibrillator; BLS: Basic Life Support; CI: Confidence interval; SPSS: Statistical Package for Social Sciences

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Authors' contributions

ZAA supervised the study, edited and critically reviewed the manuscript for important intellectual content, and approved the final version to be published. AAR, NAA, HMS, and ASH edited and critically reviewed the manuscript for important intellectual content, and approved the final version to be published. MMA helped in the data collection, assisted with data interpretation, wrote and edited the manuscript, critically reviewed the manuscript for important intellectual content, and approved the final version to be published. TAW contributed to the statistical analysis and approved the final version to be published. RMA designed the study, collected and coordinated the data collection, interpreted the data, wrote and edited the manuscript, critically reviewed the manuscript for important intellectual content, and approved of the final version to be published. All authors read and approved the final manuscript.

Availability of data and materials

The data used to support the findings of this study are available from the corresponding author upon request.

Ethics approval and consent to participate

The study was approved by the Institutional Review Board, Research Center, King Fahad Medical City, Riyadh City, Saudi Arabia. (study number IRB00010471). All participants signed consent forms.

Consent for publication

Not applicable

Competing interests

The authors declare that there is no competing of interests.

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Basic Life Support Knowledge and Its Associated Factors Among a Non-Medical Population in Gondar Town, Ethiopia

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Background: Different life-threatening accidents can happen anywhere at any time in our daily livings. In this study, the knowledge about basic life support was below average among the non-medical population.

Objective: The aim of the study was to assess basic life support knowledge and its associated factors among non-medical population attending the outpatient department.

Methods: An institutional-based cross-sectional study was conducted from January 15/2020 to February 30/2020. Systematic random sampling was employed to get representative samples. Data were collected by using a structured interviewer-administered questionnaire. The data were analyzed by using a binary logistic regression model. Crude and adjusted odds ratios with the corresponding 95% confidence intervals were computed. Those variables with P-values of ≤ 0.05 were considered significantly associated with the outcome variable.

Results: A total of 412 participants took part in the study with a response rate of 97.4%. Among the participants, 183 (44.4%) [95% CI (39.8–49.5)] were knowledgeable about basic life support. Age of 30–40 years was 50% [AOR=1.50, 95% CI (1.15–1.97)], the age of >40 years was 2.45 [AOR=2.45, 95% CI (1.53–3.91)], being male [AOR=2.22, 95% CI (1.41–3.49)], lived in the urban [AOR=1.66, 95% CI (1.25–3.56)], being trained [AOR=4.65, 95% CI (1.85–11.67)], ever heard about BLS and having exposure with the person in need of BLS [AOR=3.02, 95% CI (2.05–4.74)], and [AOR=2.59, 95% CI (1.69–3.98)] times more to be knowledgeable as compared with their counterparts.

Conclusion: The finding of this study demonstrated that knowledge score of the participants was below average. Therefore, there has to be more to do so as to scale up the knowledge of the community for reducing preventable deaths from unexpected emergency situations.

Keywords: basic, life, first aid, support, knowledge, cardiac arrest, non-medical, population

Introduction

Background

Basic life support is the provision of initial care for an illness or injury, usually by any nearby (bystander) person, until medical treatment can be accessed.¹ Early recognition and activation of Emergency medical service (EMS) and early bystander basic life support (BLS) are the most important factors determining the survival probabilities in patients. This in turn depends entirely on the knowledge and actions of the bystanders.² Evidence showed that difficulties in performing bystander cardiopulmonary recitations (CPR) in developing countries are due to inadequate knowledge or training, absence of skill, lack of confidence, and fear of litigation.^{2–4} The World Health Organization

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estimated a homicidal rate of 8 per 100,000 populations in its 2014 Global Status Report on homicidal prevention (>7000 deaths annually).⁵ On top of these and that reason provision of immediate basic life support to patients who require emergency care can make a big difference to the outcome.⁶ Basic life support as the first action, taken for the management of injuries and common illness reduce the future occurrence of the disease and its complication rates.⁷

In certain self-limiting illnesses or minor injuries, appropriate basic life support/first aid measures may be sufficient to avoid a medical consultation and the risk of life lost.⁸ Different unintentional and life-threatening accidents can happen anywhere at any time in our daily living. This needs immediate and appropriate life-saving care before the affected person gets further medical or surgical treatment options. This life-saving care or basic life support is an assessment and interventions that can be carried out by a person nearby immediately with minimal or without medical equipment.^{7,9} Patient's chance of survival is not only a concern for health care professionals but also a concern for the general public, who have the opportunity to act when witnessing unintentional accidents or injuries.¹⁰

The ultimate goal of basic life support is to stop or to reverse the possible harm at a given time before reaching the appropriate health care Centre.^{11,12} BLS knowledge is a method and technique that used to perform practice related to prevention and immediate response to health emergencies. It can be given in all areas such as household, schools, workplace, and recreational areas. Beyond health matters, basic life support knowledge also increases the social responsibility of society and strengthens values.^{3,13} Therefore, this makes it important to have a basic knowledge of basic life support. The proportion of basic life support knowledge was reported 39.2% in Saudi Arabia, 43.7% in Iran, 74.3% in Egypt, and 44.0% in Jimma, respectively.^{14–16} Other similar studies, in Saudi Arabia and Addis Ababa also reported that basic life support knowledge was 50.0%, 45.8%, 40.0%, and 50.3%, respectively.^{4,9,14,17} Studies in India and Portugal showed that level of education, gender, and income was significantly associated with knowledge score towards basic life support.^{18,19} The study in Saudi Arabia revealed that higher income and level of education were significantly associated with higher knowledge score towards BLS.¹⁴ Another study in Saudi Arabia also showed that the age of the participants, higher education, and taking training courses significantly increased the knowledge about basic life support information.⁹

Studies conducted in India, Egypt, Republic of Slovenia, Saudi Arabia and Portugal revealed that having training about first aid was significantly associated with knowledge.^{2,3,9,19,20} The study conducted in Addis Ababa also revealed that those participants who had first aid training were nearly five times more to have adequate knowledge towards basic life support compared with those participants who did not have training.²¹ Knowledge of the Public about basic life support is especially as important as the care given in the Hospital. This is because many adverse consequences of unintentional accidents or injuries can be averted if the public knows what actions to take. Therefore, this study was aimed to assess knowledge towards basic life support and its associated factors among the non-medical population.

Methods

Study Design and Period

An institutional-based cross-sectional study was conducted among the non-medical population living in Gondar town from January 15/2020 to February 30/2020.

Study Area

The study was conducted at Gondar town Northwest Ethiopia. Gondar is found in Amhara National Region State which is 735 km far from Addis Ababa (the capital city of Ethiopia) and it is one of the ancient towns in the country. It has one Comprehensive specialized Hospital which serves around 7 million people both within and outside of the town. It has also eight health centers.

Source Population

All adult non-medical individuals attending Gondar town public health institution were the source population.

Study Population

All adult non-medical individuals attending the selected outpatient departments of Gondar town public health institutions during data collection.

Inclusion and Exclusion Criteria

All adult non-medical individuals attending outpatient department of Gondar town public health institutions and available during data collection were included in the study. Whereas, individuals who had a serious illness and had the difficulty of communication were excluded in the study.

Sample Size and Sampling Procedures

The sample size was determined by using a single population proportion formula with the assumptions of 95% level of confidence, 5% marginal error, taking 50% for basic life support proportion since no study in the study area and 5% non-response rate. Taking these assumptions, the initial sample size was 385. Considering the 10% non-response rate, the final sample size was 423. The public institutions found in the town were selected by a simple random method. Then after the average flow of patients at the outpatient department was identified at each selected health institutions and proportional allocation was done to get a representative sample. Finally, the study participants were selected using a systematic random sampling by using the lottery method in their sitting order during service waiting (See [supplementary file 1: Figure S1](#)).

Data Collection Tools and Procedures

A structured pre-tested interviewer-administered questionnaire modified from other related published studies were used to collect the data.^{9,10,14,16} The Cronbach's Alpha after items deleted for the knowledge items was found 0.845. Before the actual data collection, five BSc nurse data collectors had a brief training about the aim of the study and the content of the questionnaire to collect uniform data. The questionnaire has 2 parts which include: socio-demographic and knowledge related items, respectively. Knowledge about basic life support was measured by thirty interviewer-administered questions ([supplementary file 2](#)) collected by four trained BSc degree nurses. The data collected in about 20–25 minutes were computed by coding the correct response as “1” and the incorrect responses as “0”. Then after the correct answers were added up and participants who scored the mean and above were labeled as having good knowledge, whereas with a score of below mean were classified as poor knowledge about basic life support.

Operational Definition

BLS Knowledge

Knowledge about component of basic life support/first Aid, sign and management of the respiratory problem, management of bleeding and immobilization of fracture, the position of the victim, communication and transportation of victim start from the scene.²²

Knowledge

Sum of the knowledge correctly answered questions were normally distributed. So that it was measured by calculating the mean score and categorized as knowledgeable (if

participants scored $\geq$ mean) of the correctly answered questions) or not knowledgeable [if participants scored $<$ mean] of the correctly answered questions.^{21,22}

Data Quality Control

The questionnaire was pre-tested among 5% non-medical population a week before the actual data collection. The questionnaire was prepared in English first and translated to Amharic for better understanding of the participants. Based on the findings of the pretest modifications on vague questions and flow of items was done. One day training was given for data collectors. The data were checked for its completeness during data collection, entry and analysis process.

Data Processing and Analysis

After data collection, a questionnaire was checked for completeness and consistency. The data template format was prepared and entered into Epi info version 7. Then data were exported and analyzed using SPSS version 20. Descriptive statistics was employed to describe the frequency, percentages, and distributions of the sample. The knowledge score was tested for normality using Shapiro-Wilk test and its distribution was compared between the pre-sated categories of socio-demographic variables. The model fitness was checked by Hosmer-Lemeshow goodness of fit with the p-values of >0.05 . Binary logistic regression analysis was used to see the association between dependent and independent variables. Crude and adjusted odds ratios with the corresponding 95% confidence intervals were computed. In multivariable logistic regression, those independent variables with a P-values ≤ 0.05 were considered statistically significant in multivariable analysis.

Result

Socio-Demographic Characteristics

Among a total of 423 study participants, 412 were responding to the interview with the response rate of 97.4%. The mean age of the participants was (35.09 $\pm$ 8.737 SD) with a range of 18–56 years. Majorities (67.0%, 68.0% and 71.8%) were male, married, and urban residents, respectively. The large proportion of 355 (91.5%) of the study participants did not take any training regarding basic life support. Among participants about (62.9%) had one occasion to be trained about basic life support (Table 1).

Table 1 Socio-Demographic Characteristics of Participants at Gondar Town Public Health Institutions Northwest, Ethiopia, 2020

Variables	Category	Frequency	Percentage
Age in years	18–30	140	34.0
	30–40	151	36.7
	>40	121	29.4
Sex	Male	276	67.0
	Female	136	33.0
Residency	Urban	296	71.8
	Rural	116	28.2
Education	No formal education	191	46.4
	Formal education	221	53.6
Marital status	Married	280	68.0
	Single	101	24.5
	Widowed	21	5.1
	Divorced	10	2.4
Religious	Orthodox	282	68.4
	Muslim	128	31.1
	Protestant	2	0.5
BLS training	Yes	35	8.5
	No	377	91.5
Type of training	Verbal	15	42.9
	Practical	7	20
	Both	13	37.1
Frequency of training	One	22	62.9
	≥ Two	13	37.1
Ever heard about BLS	Yes	241	58.5
	No	171	41.5
Source of information	Reading	36	5.0
	Media	85	35.3
	Health personnel	91	37.7
	Friends and relatives	29	12.0
Facing a person in need of BLS	Yes	215	52.2
	No	197	47.8

Abbreviation: BLS, basic life support.

Knowledge Towards Basic Life Support

Among 412 participants took part in the study 183 (44.4%) [95% CI (39.8–49.5)] were knowledgeable towards basic life support.

Distribution of Basic Life Support Knowledge by Socio-Demographic Characteristics

Participants who had trained possessed higher basic life support mean knowledge score than had not trained (21.20 ± 2.21 vs 18.84 ± 4.22). Moreover, participants who dweller in Urban had a higher mean score of basic life support knowledge than rural (19.48 ± 4.14 vs 17.92 ± 4.02) (Table 2).

Factors Associated with Knowledge of Participants About Basic Life Support

Among variables entered into multiple logistic regression analysis age, sex, residence, trained about basic life support, ever heard about basic life support, and exposure with the person in need of basic life support was significantly associated with the knowledge score. In this regard, being in the age of 30–40 years was 50% [AOR=1.50, 95% CI (1.15–1.97)] more to have good knowledge about basic life support. Whereas, being in the age of >40 years was 2.45 [AOR=2.45, 95% CI (1.53–3.91)] times more knowledgeable as compared with its counterpart. Being male was found to be nearly two [AOR=2.22, 95% CI (1.41–3.49)] times knowledgeable as compared with being female. Those who lived in the urban were found 66% [AOR=1.66, 95% CI (1.25–3.56)] more knowledgeable compared with rural dwellers. Being trained was nearly five [AOR=4.65, 95% CI (1.85–11.67)] times more knowledgeable compared with its counterpart. Ever heard about BLS and having exposure with the person in need of BLS were found to be three [AOR=3.02, 95% CI (2.05–4.74)], and [AOR=2.59, 95% CI (1.69–3.98)] times more knowledgeable as compared with their counterparts (Table 3).

Discussion

In this study, the level of good knowledge about basic life support was found to be 44.4% among non-medical participants. The result was in line with the study conducted in Addis Ababa,¹⁷ Saudi Arabia⁹ and Iran²³ which was 40.0%, 40.3%, and 45.8%, respectively.

The current study result was lower than the studies conducted in Addis Ababa 50.3%, Saudi Arabia 50%, Egypt 74.3%, respectively.^{4,15,21} The possible explanations might be due to the fact that tool variation in using the cut points, socio-demographic variations, and the inclusion criteria variations. Majority of the study participants in the studies above were at least they had formal education and at most degree holders

Table 2 Socio-Demographic Distribution of Participants' Score of BLS Knowledge at Gondar Town Public Health Institutions Northwest, Ethiopia, 2020

Variables	Category	N (%)	Score of BLS Knowledge (mean±SD)	p-value
Age in years	18–30	140(34.0%)	19.52±4.15	0.156
	30–40	151(36.7%)	18.78±4.06	
	>40	121(29.4%)	18.81±4.29	
Sex	Male	276(67.0%)	19.46±3.91	0.04*
	Female	136(33.0%)	18.19±4.52	
Residency	Urban	296(71.8%)	19.48±4.14	0.001**
	Rural	116(28.2%)	17.92±4.02	
Education	No formal education	191(46.4%)	18.57±4.19	0.033*
	Formal education	221(53.6%)	19.04±4.16	
Marital status	Married	280(68.0%)	19.06±4.24	0.017*
	Single	101(24.5%)	19.39±3.69	
	Widowed	21(5.1%)	19.05±4.61	
	Divorced	10(2.4%)	19.04±4.16	
Religious	Orthodox	282(68.4%)	19.06±4.13	0.001**
	Muslim	128(31.1%)	19.02±4.19	
	Protestant	2(0.5%)	17.50±9.19	
BLS training	Yes	35(8.5%)	21.20±2.21	0.001**
	No	377(91.5%)	18.84±4.22	
Type of training	Verbal	15(42.9%)	21.80±2.11	0.029*
	Practical	7(20.0%)	19.00±4.00	
	Both	13(37.1%)	21.54±2.18	
Frequency of training	One	22(62.9%)	21.0 ±3.42	0.528
	≥ Two	13(37.1%)	21.56±1.68	
Ever heard about BLS	Yes	241(58.5%)	19.99±3.88	0.0001***
	No	171(41.5%)	17.71±4.19	
Source of information	Reading	36(5.0%)	9.19±4.15	0.023*
	Media	85(35.3%)	19.43±4.03	
	Health personnel	91(37.7%)	20.17±3.67	
	Friends and relatives	29(12.0%)	21.17±4.67	
Facing a person in need of BLS	Yes	215(52.2%)	20.11±4.16	0.0001***
	No	197(47.8%)	17.87±3.84	

Notes: *P-values < 0.05; **P-values < 0.001; ***P-values < 0.0001.

Abbreviation: BLS, basic life support.

whereas in the current study majority did not have even formal education. Therefore, for this and that reason, the knowledge score might be decreased or increased. The finding of this study was higher than the study conducted in Saudi Arabia showed that 39.2% of the study participants were knowledgeable towards basic life support or first aid during an emergency.¹⁴ The possible variation might be due to the fact that there socio-demographic, variation, sample size, and cut point variations which brought the significant score difference. Being urban residency demonstrated a higher knowledge mean

score as compared with rural (19.48 vs 17.92). The possible explanation might be due to the fact that 85% of the rural community is not educated as compared with 15% urban dweller. The urban community might have access for information about basic life support than the rural.

The higher knowledge mean score was demonstrated among ever trained than not yet (21.20 vs 18.84) (Table 2).

Among variables entered into multiple logistic regression analysis age, sex, residence, trained about basic life support, ever heard about basic life support, and exposure

Table 3 Bivariable and Multivariable Analysis of Factors Associated with Knowledge of Basic Life Support at Gondar Town Public Health Institutions, Northwest, Ethiopia, 2020 (n=412)

Variables	Category	Knowledge		COR (95% CI)	AOR (95% CI)	p-values
		Good	Poor			
Age in years	18–30	75	65	1	1	
	30–40	57	94	1.90(1.19–3.04)	1.50(1.15–1.97)	0.03*
	>40	51	70	1.58(0.97–2.59)	2.45(1.53–3.91)	0.000 ***
Sex	Male	138	138	2.02(1.32–3.10)	2.22(1.41–3.49)	0.00 **
	Female	45	91	1	1	
Residence	Urban	144	152	1.87(1.69–2.93)	1.66(1.25–3.56)	0.04*
	Rural	39	77	1	1	
Education	No formal	78	113	0.76(0.52–1.12)	0.63(0.38–2.57)	0.08
	Formal	105	116	1	1	
Marital status	Married	127	153	1	1	
	Single	49	52	0.88(0.56–1.39)	0.46(0.29–1.48)	0.43
	Widowed	6	15	2.08(0.78–5.51)	1.89(0.65–2.16)	0.32
	Divorced	1	9	7.47(0.93–59.76)	5.88(0.77–41.34)	0.09
BLS training	Yes	29	6	6.99(2.84–17.26)	4.65(1.85–11.67)	0.00 **
	No	154	223	1	1	
Ever heard about BLS	Yes	134	107	3.12(2.05–4.74)	3.02(2.05–4.74)	0.000 ***
	No	49	122	1	1	
Facing a person in need of BLS	Yes	117	98	2.37(1.59–3.53)	2.59(1.69–3.98)	0.000 ***
	No	66	113	1	1	

Notes: *P-values < 0.05; **P-values < 0.001; ***P-values < 0.0001.

Abbreviations: BLS, basic life support; COR, crude odds ratio; AOR, adjusted odds ratio.

with the person in need of basic life support was significantly associated with the knowledge score.

In this regard, being in the age of 30–40 years was 50% more to have good knowledge about basic life support. Whereas, being in the age of >40 years was 2.45 times more knowledgeable as compared with its counterpart. The possible explanation might be due to the fact that as age increase the awareness and exposure also increase, this fact was supported by the study conducted in Saudi Arabia which revealed that those with older age were knowledgeable as compared with younger age.⁹

Being male was found to be nearly two times to be knowledgeable as compared with being female. The possible explanation might be due to the fact that being male could have many more exposures and contacts with people having knowledge about basic life support which is more practical in the community than females. The work environment of males and females has its own impact on shared information. This has been supported by the study conducted in Portugal.¹⁹

Those who lived in the urban were found to be 66% more knowledgeable compared with rural dwellers. The possible explanation might be due to the fact that things are different in the accessibility in the urban and the rural such as media, reading materials, and due to health professional education regarding basic life support.

Not only these but also the majority of the rural communities did not have an educational background which hinders them from getting information by reading. These findings were supported by the studies conducted in Saudi Arabia.¹⁴ In this study, only 35 (18.5%) of the participants had a chance to take training about basic life support, of this only 20.0% had had a practical type of training. In the multivariable analysis, being trained about basic life support was found to be nearly five times more to be knowledgeable compared with did not take the training.

The possible explanation might be due to the fact that trained participants had increased awareness about basic life support components which might bring good knowledge score compared to did not take the training. This has been

supported by the studies conducted in Addis Ababa, Egypt, Slovenia, Saudi Arabia, and South Australia^{2,3,9,18,21}. In this study, the main source of information about basic life support was found to be from health professionals followed by media 37.7% and 35.5%, respectively. In the multiple logistic regressions analysis, ever heard about basic life support was found to be significantly associated with knowledge score of the participants. In this regard, those with prior information about BLS were found to be three times more knowledgeable as compared with did not have any information.

The possible explanation might be due to the fact that those heard could have a chance to look through to know about it as compared to did not hear about BLS. Even who hear might have a chance to read if they can, and to ask others than those who did not know about basic life support. Having exposure to the person in need of BLS was also found to be nearly three times more knowledgeable as compared with their counterparts. The possible explanation might be due to the fact that they have the chance to know what about basic life support with practice compared to no exposure at all. As the study result depicted that the knowledge score of non-medical participants was not satisfactory since it was below average. Therefore, the respected health institutions need have to do a lot so as to scale up knowledge of the community regarding basic life support. Giving health education when they come for service might have a great impact on the scale up the knowledge of the patients and the community at large. This in turn might save lots of sudden life loss due to lack of knowledge about basic life support.

Strength and Limitation of the Study

The study was newly conducted in the study area with adequate sample size. It tried to assess the knowledge of non-medical population which could be important to set strategies to reduce the sudden cause of death. The limitation of the study did not address the attitude and practice of the participants.

Conclusion

The study revealed that the proportion of good knowledge about basic life support was found to be below half which implies that there has to be more to do in the future. This is because scaling up of the communities awareness has a great impact on the individual as well as government level by decreasing sudden cause of death. This in turn

prevents an individual's, families', and the government from budget drainage through saving life of the citizens. In this study being old, male, being urban dwellers, having training, ever heard about BLS, and having exposure of a person in need of basic life support were statically significant predictors of good knowledge score of non-medical participants' about basic life support.

Recommendations

- To central Gondar health bureau better to set strategies so as to create awareness by going deep through the community. This has to be a very crucial strategy to reduce the sudden cause of death and in the way forward increasing productivity and development of the Zone, in particular, the region and the country at large.
- To health professionals to strengthen their information provision for the community while they give care.
- To the study participants better to look through different sources of information such as reading, watching or following media, ask other who are near to information, and ask the health professionals what is unclear for them.
- To researchers better to do large-scale studies by incorporating the attitude and practice of the community.

Abbreviations

AED, automated external defibrillator; AOR, adjusted odds ratio; BLS, basic life support; COR, adjusted odds ratio; CPR, cardiopulmonary resuscitation; EMS, emergency medical service; FA, first aid; OHCA, out of hospital arrest; SPSS, statistical package for social science; SCD, sudden cause of death; WHO, World Health Organization.

Data Sharing Statement

The data could not be given in order to protect participants' confidentiality by far for this study. The whole summary of the data is available in the manuscript document. It could also be given if it is necessary, but upon reasonable request.

The Ethical Approval and Consent of Participating

Ethical clearance and the approval of the study was done by the University of Gondar, college of medicine and health sciences, school of nursing research and ethical review committee so as

to precede it. The letter of permission and support was gained from the clinical director of the Hospital. All the participants of the study were well informed about the overall rationales of the study. They had got written informed consents to secure their confidentiality. The study has been performed following the ethical standards laid down in the 1964 Declaration of Helsinki.

Consent to Publish

This is not applicable.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

Both authors declared that they have no competing interest concerning this work.

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Research Article

Knowledge of Nonmedical Individuals about Cardiopulmonary Resuscitation in Case of Cardiac Arrest: A Cross-Sectional Study in the Population of Jeddah, Saudi Arabia

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Introduction. In cardiac arrest victims, providing a high-quality cardiopulmonary resuscitation (CPR) is a fundamental component of initial care, especially in the out-of-hospital settings. In this study, we sought to assess the knowledge of nonmedical people regarding cardiopulmonary resuscitation in the case of out-of-hospital cardiac arrest. **Methods.** A cross-sectional survey containing 22 questions was administered to individuals aged ≥ 18 years, who were not health care providers. Sample included residents of Jeddah, Saudi Arabia. The survey included knowledge about cardiac arrest findings, previous experience with CPR, knowledge of basic life support (BLS), and concerns related to CPR. **Results.** The fully completed survey forms of 600 respondents were analysed. Out of these, 28.7% stated that they had previously received training in CPR. Regarding manifestations of cardiac arrest, 40.7% suggested loss of consciousness, 36.8% suggested cessation of breathing, and 24.7% suggested cessation of circulation. Only 11.7% among respondents were found to be able to perform chest compressions. Also, only 9.2% could perform mouth-to-mouth ventilation, and 29.5% were able to perform both. While 55.5% knew the location for performing chest compressions, 44.7% knew the correct depth, and only 18.5% knew the correct compression-ventilation rate. Bystander CPR had been performed by only 10.7%. **Conclusion.** In our sample, we found lack of knowledge regarding CPR. We advise for a coordinated national effort to improve the public awareness about CPR performance. This may include mass education, specialized training, and setting legislations.

1. Introduction

Sudden cardiac arrest is the main cause of death for millions of people worldwide every year [1, 2]. In cardiac arrest victims, cardiopulmonary resuscitation (CPR) is a fundamental component of initial care. The quality of delivered CPR improves the survival rate from cardiac arrest [3], especially when the incident happens out of the hospital.

The incidence of adult out-of-hospital cardiac arrest (OHCA) is estimated to be 95.9 cases per 100,000 persons per year [4, 5]. In a survey performed in a busy street in a city of a western region of Turkey, 40.7% of people living in a highly educated region reported having received CPR training and 3.6% had previously performed bystander CPR

[2]. This requires an improvement of community awareness about recognizing the signs of cardiac arrest and determining when to start performing CPR.

There is a significant impact of having good public awareness about how to practice CPR. In the majority of cases, the first person to act in OHCA is a victim's relative, usually a nonmedical person. Approximately 70% to 75% of cases of OHCA are witnessed by nonmedical people [6–8]. The early recognition of OHCA, early activation of emergency medical services (EMS), and early provision of bystander basic life support (BLS) are the most important factors that determine the survival probability in patients with OHCA; these actions depend entirely on the knowledge, attitude, and actions of the bystanders [7, 9]. Survival after OHCA is low (3%–30%)

but showed improvement after increased public education and increased use of automatic external defibrillators [7, 10]. Data collected on survival rates showed that OHCA patients who receive bystander CPR have a greater chance of survival versus those who do not [4].

Unfortunately, there are scarce data available about OHCA and CPR performed by individuals who are not health care providers in Saudi Arabia [11]. One study looked at cases of OHCA and identified differences in clinical variables and survival rates in patients arresting out-of-hospital and in the emergency department at a single hospital in Riyadh, Saudi Arabia. The study found that a total of 61 adults arrested out of hospital, and the most prevalent reported presumed cause of arrest was of cardiac origin in 82.3% of patients [11]. Patients arrested at home composed 74% of the study population with an overall mortality rate of 95.8% and a low rate of bystander CPR being performed. A family member most often transported the patient to the hospital [11].

We believe that the knowledge of nonmedical people (i.e., individuals who are not health care providers) to recognize and intervene by doing CPR in the kingdom of Saudi Arabia has not previously been evaluated. In the present study, we aimed to assess the knowledge of nonmedical people in Jeddah to recognize and intervene by doing CPR in the case of OHCA.

2. Methods

This cross-sectional survey study was initiated after receiving ethics committee approval from the Unit of Biomedical Ethics at King Abdulaziz University (reference no. 181-18).

Our sample size was 600 persons, which was calculated by the use of OpenEpi (Massachusetts Institute of Technology, Cambridge, MA, USA). All of the selected participants live in Jeddah, the second largest city after Riyadh and the most cosmopolitan city in the kingdom of Saudi Arabia. Prior to filling out the questionnaire, the purpose of the study was explained and verbal consent was obtained from all of the participants in the study. The inclusion criteria were an age of older than or equal to 18 years and not being a health care provider. Those who were younger than 18 years, health care providers, or who refused to participate were excluded.

The questionnaire was distributed to residents of Jeddah, Saudi Arabia, between March 2018 and April 2018. The questionnaire survey used in the present study was taken from an investigation done in Izmir, Turkey [2], and translated into Arabic by an expert in translation and subsequently translated into English by another expert in translation. Both translated versions were reviewed for consistency and clarity. Both the Arabic and the English questionnaires were distributed at separate times to 30 participants who spoke both English and Arabic fluently. The results were the same on both occasions.

The questionnaire included 22 questions in the Arabic language (which were adapted according to our practices

and culture) on the demographic features of the participants; their knowledge regarding cardiac arrest manifestations (e.g., cyanosis, difficulty in breathing, nausea, and faintness of the skin); their previous CPR experiences (e.g., witnessing cardiac arrest, conducting CPR, and having a CPR certificate); whether or not they knew the national phone number for emergency situations; their BSL knowledge (e.g., compression location, number, and rate of ventilations/compressions); their concerns regarding CPR (e.g., possibility of making a mistake, contracting a contagious disease from blood and vomitus, and legal concerns); and their attitudes (i.e., who are the people to whom they will give CPR without hesitation) (**Supplementary Materials** (available here)).

Correct cardiac arrest findings and algorithms of BLS were determined according to the 2015 European Resuscitation Council Resuscitation Guidelines [12], the 2017 American Heart Association Focused Update on Adult BLS and CPR Quality [13], and the 2010 Saudi Heart Association Guidelines on CPR.

The data were analysed using the Statistical Package for the Social Sciences version 15.0 software package program (IBM Corp., Armonk, NY, USA). Categorical data were displayed as numbers (n) and percentages (%), while numerical data were displayed in the form of mean $\pm$ standard deviation (after testing for normality of distribution). The chi-squared test was used in the analysis of categorical data. A p value of < 0.05 in the statistical tests was accepted as being significant.

3. Results

3.1. Demographic Data. Out of 600 participants, 360 (60%) were females. The mean age of our population was 37.4 ± 13.6 years. Two hundred forty-nine (41.8%) people were employees. The number of participants who stated that they had received CPR training was 172 (28.7%). Additional collected demographic data are presented in Table 1.

3.2. Regarding the Prodromal Symptoms and Signs of Sudden Cardiac Arrest. The main reported manifestation was chest pain (68.8%), followed by difficulty in breathing (50.8%), loss of consciousness (40.7%), and discontinuation of breathing (36.8%). The rest of the manifestations suggested by the respondents to indicate sudden cardiac arrest are presented in Table 2.

3.3. Identification of Cardiac Arrest Findings. With respect to consciousness evaluation, the percentage of those who knew one of the procedures correctly was 44.8%, followed by those knowing two of the procedures correctly being 25.2%, and then those knowing three of the procedures correctly being 12.8%. Regarding respiration evaluation, the percentage of those knowing one of the procedures correctly was 39.2%, followed by those knowing two of the procedures correctly (31.2%), and then those knowing three of the procedures correctly (20.2%). Furthermore, for circulation evaluation, the percentage of those knowing one of the procedures correctly was 51.4%, followed by those knowing both of the procedures

TABLE 1: Demographic data.

Variable	Mean $\pm$ SD	Range
Age (years)	37.4 $\pm$ 13.6	(18–72)
Variable	N	%
Gender		
Male	240	40.0
Female	360	60.0
Education		
Elementary	5	0.8
Intermediate	26	4.4
High school	82	13.7
College	59	9.9
University	158	26.4
Postgraduate	268	44.8
Occupation		
Unemployed	30	5
Worker	16	2.7
Employee	249	41.8
Housewife	117	19.7
Student	104	17.5
Retired	57	9.6

TABLE 2: Prodromal symptoms and signs of sudden cardiac arrest.

Variable	N	%
Loss of consciousness	244	40.7
Discontinuation of breathing	221	36.8
Discontinuation of circulation	148	24.7
Cyanosis	185	30.8
Nausea	66	11
Difficulty in breathing	305	50.8
Chest pain	413	68.8
Faintness of the skin	137	22.8
The individual is not moving	142	23.7

correctly (32.2%). More than half of the respondents (57.2%) knew the correct meaning of chest compression, that is, 'to apply strong compressions to the chest at certain intervals (compression)'. These results are presented in Table 3.

3.4. Witnessing a Sudden Death. Only 95 (15.8%) reported witnessing a sudden death before, while only 36 (21.1%) were able to perform CPR. The rest of these results are presented in Table 4.

3.5. CPR Attitudes. For the respondents who answered the question 'to whom would you apply CPR without hesitation', 465 (94.2%) stated for a family member, followed by 397 who said for a friend (66.2%), and then 313 who said for

a neighbour (52.2%). For the question 'what would you do in the case of a family member', 'call an ambulance' was selected by 44.4% and 'begin to give a chest compression' was selected by 35.8%. For the question 'what would you do regarding a stranger', 'call an ambulance' was reported by 54.7% and 'begin to give a cardiac chest compression' was stated by 24.5%. The main reason that may prevent someone from giving a chest compression to either a friend/relative or a stranger was reported as 'making a mistake' by 71.0% and 62.0%, respectively. The rest of these results are presented in Table 5.

3.6. CPR Knowledge and Training Status. Only 196 (32.7%) of the participants reported knowing how to give a chest compression and only 172 (28.7%) had received formal

TABLE 3: Identification of cardiac arrest findings.

Variable	N	%
Consciousness evaluation		
No response when called	373	62.2
No response when touched	221	36.8
Not moving at all	208	34.7
I do not know	114	19
Those knowing three of the procedures correctly	77	12.8
Those knowing two of the procedures correctly	151	25.2
Those knowing one of the procedures correctly	269	44.8
Those who do not know any of the procedures (I do not know)	103	17.2
Respiration evaluation		
Not having any respiratory movement	360	60
Not having any respiratory sound	267	44.5
No coming air out of the mouth of an individual	310	51.7
No steaming up of a mirror placed in front of the mouth of an individual	135	22.5
I do not know	42	7
Those knowing three of the procedures correctly	115	20.2
Those knowing two of the procedures correctly	188	31.2
Those knowing one of the procedures correctly	235	39.2
Those who do not know any of the procedures (I do not know)	38	6.3
Circulation Evaluation		
Not feeling a pulse in the vessels of the neck	121	20.2
Not feeling a pulse in the vessels of the arm	187	31.2
Both	193	32.2
I do not know	108	18
'Chest compression' means		
To scrub the chest at certain intervals	67	11.2
To apply strong compression to the chest at certain intervals (compression)	343	57.2
To scrub the heart directly by opening the chest wall	11	1.8
To apply compression directly to the heart by opening the chest wall	24	4.0
I have no idea	155	25.8

training. Regarding where these individuals were trained, 46 (21.3%) reported receiving training 'at a course given by the trainers of the ministry of health.' The rest of these results are presented in Table 6.

3.7. CPR Skills. Less than one-third (177; 29.5%) reported that they could 'both ventilate and give a chest compression.' Only 69 (11.5%) knew the proper rate of chest compression to artificial ventilation during CPR (30/2 compression/breath) and only 71 (11.8%) knew the proper rate of chest compressions (i.e., at least 100 times per minute). Of the total participant cohort, 333 (55.5%) knew the applying place of chest compression (middle of the chest) and 267 (44.5%)

knew the appropriate force to apply (moderate force, such that the rib cage moves down 5 cm to 6 cm). Additionally, 428 (71.3%) knew about the defibrillator (a device that restarts a heart that has stopped working) and 132 (22.0%) knew where an automated external defibrillator or a pacemaker can be found. The rest of these results are presented in Table 7.

3.8. Association between Identification of Cardiac Arrest Findings and CPR Training. The survey results revealed a significant difference in the identification of cardiac arrest findings between respondents with previous CPR training and those without. Those who had received training showed a higher rate of knowing the correct procedures of evaluation

TABLE 4: Witnessing a sudden death.

Variable	N	%
Who was he/she?		
Somebody from my family	63	10.5
Somebody from my friends or acquaintances	14	2.3
A stranger	23	3.8
I have not seen a sudden death happen	505	84.2
What did you do in the situation?		
I began to give chest compressions	21	15
I conducted mouth-to-mouth ventilation	10	7.1
I both gave chest compressions and conducted mouth-to-mouth ventilation (i.e., I gave CPR)	36	22.1
I called an ambulance	57	40.7
I told somebody to call for help	42	30.7
I called for help by telephone	20	14.3
I just watched and left	25	17.9

TABLE 5: Taking action.

Variable	N	%
If sudden death occurs in the following people, for whom would you conduct respiration and give chest compression?		
Someone from the family	565	94.2
Friend	397	66.2
Neighbour	313	52.2
A youth in the sports hall	230	38.3
A stranger in the supermarket	220	36.7
A person who has poor personal hygiene at the bus stop	172	28.7
A gamin who is drug-dependent and uses glue, hashish, and/or heroin	154	25.7
If somebody from among your family members or friends felt faint (sudden death), what would you do?		
I would begin to give chest compression	215	35.8
I would call an ambulance	264	44.4
I would call somebody or call for help	119	19.8
I would just watch and leave	2	0.3
If you witness a stranger feeling faint, what would you do?		
I would begin to give chest compression	147	24.5
I would call an ambulance	328	54.7
I would call somebody or call for help	120	20.0
I would just watch and leave	2	0.5
What concerns may prevent you from giving chest compression to your friends or relatives?		
Making a mistake	426	71.0
Causing bone fractures	27	4.5
Causing harm to organs	25	4.2
Stopping a working heart	19	3.2
Punishment due to legal reasons	26	4.3
Contamination by blood or vomiting	5	0.8
Contracting a contagious disease	12	2.0
Other	60	10.0
What concerns may prevent you from giving chest compression to a stranger?		
Making a mistake	372	62.0
Causing bone fractures	19	3.2
Causing harm to organs	24	4.0
Stopping a working heart	17	2.8
Punishment due to legal reasons	59	9.8
Contamination by blood or vomiting	12	2.0
Contracting a contagious disease	31	5.2
Other	66	11.0

TABLE 6: CPR training.

Variable	N	%
Do you know how to give chest compression in the case of cardiac arrest and respiratory standstill?		
No	404	67.3
Yes	196	32.7
Have you received any training?		
No	428	71.3
Yes	172	28.7
Where (n = 172)?		
At school	23	10.6
At university	32	14.8
During my military service	5	2.3
At a resuscitation society course	13	6.0
At a course given by the trainers of the ministry of health	46	21.3
In a sports club	6	2.8
At a course given in the workplace	37	17.1
Television/Internet/media	53	24.5

of consciousness, respiration, and circulation ($p = 0.151$, $p = 0.018$, and $p = 0.026$, respectively). For more details, see Table 8.

3.9. Association of Response to a Sudden Death with CPR Training. The results revealed no significant difference in the action of the witness of a sudden death between respondents with previous CPR training and those without. For more details, see Table 9.

3.10. Association of CPR Application with CPR Training. The results revealed a significant association between the application of CPR and having CPR training. Those who received training showed a higher rate of knowing the correct answers regarding proper rate of chest compression /artificial ventilation during CPR, where the chest compression must be applied, the rate of chest compressions, and the force that must be applied during chest compression ($p < 0.0001$, $p < 0.0001$, $p < 0.0001$, and $p = 0.004$, respectively). For more details, see Table 10.

4. Discussion

It is agreed largely that CPR is one of the most essential methods available to save a cardiac patient's life. As such, we think that it is very important to evaluate the level of knowledge in our society. In the present study, we sought to assess the knowledge of nonmedical people in Jeddah to recognize and intervene by doing CPR in the case of OHCA.

At the beginning of our analysis, we calculated the percentage of nonmedical people who had participated in a CPR course in the past. Unfortunately, we found that only 172 (28.7%) individuals undertook a CPR course, despite the excellent education level that our people generally have. This

finding was almost similar to those of two studies conducted in Ireland and New Zealand, respectively, which revealed percentages of 28% and 27%. However, other previous studies showed higher rates of CPR training. Specifically, 79% were reported to have CPR training by a study conducted in Washington [14], 75% in Poland [15], 69.4% in Slovenia [7], 64% in Australia [16], and 40.3% in Turkey [2]. These disparate findings can be explained by the fact that BLS courses are a mandatory requirement before getting a driver's license or before enrolment in some jobs in certain countries like Turkey and Slovenia [2, 7]. In our country, at this time, it is not a mandatory requirement, except in a very few number of workplaces. One-quarter of trained nonmedical people in the present study got their CPR experience through the Internet, television, or media, which could explain the huge gap between us and the aforementioned countries.

The methods of assessing for cardiac arrest varied between respondents who received BLS course and those who did not in a statistically significant manner. Among those who previously received CPR training, 16.9%, 28.5%, and 17.4% can properly assess consciousness, breathing, and circulation, respectively. Our findings were almost equal to those of the Slovenian study, in which the authors found that 22%, 29.4%, and 9.5% of the trained people could properly assess consciousness, breathing, and circulation, respectively [7]. On the other hand, our results were much better than those reported in a Turkish study in which the investigators found that only 5%, 5.2%, and 7.1% of the trained people could properly assess consciousness, breathing, and circulation, respectively [2]. These findings assert the good quality of the CPR training that nonmedical people in our study received.

Regarding BLS application, 29.5% can perform both breathing and cardiac compression, which was similar to the results of the Turkish study (28.7%) but less than the

TABLE 7: Application of CPR.

Variable	N	%
What BLS applications can you apply?		
I can open the airway	58	9.7
I can control respiration	7	1.2
I can ventilate/conduct mouth-to-mouth ventilation	55	9.2
I can give chest compression	70	11.7
I can both ventilate and give chest compression	177	29.5
I do not know	233	38.8
What is the proper rate of chest compression /artificial ventilation during the chest compression (compressions/ breaths)?		
5/1	173	28.8
15/2	131	21.8
30/2	69	11.5
Other	227	37.8
Which of the following areas must chest compression be applied on?		
An upper part of the chest	110	18.3
Middle of the chest	333	55.5
A lower part of the chest	83	13.8
Other	74	12.3
What must be the rate of the chest compression?		
At least 150 times per minute	22	3.7
At least 100 times per minute	71	11.8
At least 50 times per minute	162	27.0
I don't know	345	57.5
How much force must be applied during chest compression?		
Enough that the rib cage moves down 1 cm to 2 cm	203	33.8
Moderate force, such that the rib cage moves down 5 to 6 cm	267	44.5
High force, such that the rib cage moves down 6 cm to 10 cm	42	7.0
As much force as possible	88	14.7
What do you know about the device defined as a defibrillator that is used during the chest compression when necessary?		
I have never heard of it	75	12.5
I have heard of it before but not seen it	96	16
It is a device supporting respiration	55	9.2
It is a device used to restart a heart that has stopped working	428	71.3
Do you have any idea about where an 'automated external defibrillator' or a 'pacemaker' can be found?		
I don't know	468	78.0
Yes	132	22.0

TABLE 8: Association between identification of cardiac arrest findings and CPR training.

Variable	Those who have not received CPR training N %	Those who have received CPR training N %	Total N %	p value ^a
Consciousness evaluation				
No response when called	126 29.4%	42 24.4%	168 28.0%	0.151
No response when touched	25 5.8%	13 7.6%	38 6.3%	
Not moving at all	49 11.4%	14 8.1%	63 10.5%	
Those knowing three of the procedures correctly	48 11.2%	29 16.9%	77 12.8%	
Those knowing two of the procedures correctly	102 23.9%	49 28.5%	151 41.4%	
Those who do not know any of the procedures (I don't know)	78 18.2%	25 14.5%	103 17.2%	
Respiration evaluation				
No respiratory movement	90 21.0%	34 19.7%	124 20.7%	0.018*
No respiratory sound	35 8.2%	7 4.1%	42 7.0%	
No air coming out of the mouth of an individual	55 12.9%	18 10.5%	73 12.2%	
No steaming up of a mirror placed in front of the mouth of an individual	17 4.0%	7 4.1%	24 4.0%	
Those knowing three of the procedures correctly	66 15.4%	49 28.5%	115 20.2%	
Those knowing two of the procedures correctly	133 31%	55 32%	188 31.2%	
Those who do not know any of the procedures (I don't know)	29 6.8%	9 5.2%	38 6.3%	
Circulation evaluation				
Not feeling a pulse in the vessels of the neck	91 21.3%	30 17.4%	121 20.2%	0.026*
Not feeling a pulse in the vessels of the arm	135 31.5%	52 30.2%	187 31.2%	
Both	120 28.0%	73 42.4%	193 32.2%	
I don't know	91 21.3%	17 9.9%	108 18%	

a: Respondents who chose 'I do not know' were excluded from the statistical test of significance

TABLE 9: Association between the actions performed to a witnessed cardiac arrest with previous CPR training.

Variable	Those who have not received CPR training N %	Those who have received CPR training N %	Total N %	p value
I both gave chest compressions and conducted mouth-to-mouth ventilation (i.e., I gave CPR)	15 16.3%	21 43.8%	36 22.1%	0.568
I called emergency services	57 62.0%	22 45.8%	79 75.0%	
I just watched and left	20 21.7%	5 10.4%	25 17.9%	

results of the Slovenian study (38%). In comparison, 38.8% reported that they do not know how to do either one of these actions, a finding which was similar to the Turkish study (38.6%) and lower than the Slovenian study (45.4%) [2, 7]. Additionally, when our study population was asked about the details of breathing and cardiac compression (for example, compression place, compression force, compression rate, and compression to breathing ratio), our population showed the same level of knowledge as did those participants in previous studies of other countries, which was very low in general with a clear significant difference between people who received training versus those who did not receive training. This raises the importance of the introduction of an urgent intervention to boost the level of knowledge in order to save as many cardiac arrest patients as possible.

According to our results, 15.8% of our population has witnessed a sudden death, with the majority of those patients being family members (70%). Unfortunately, only 22.1% started CPR in these cases. Similarly, in the Turkish study, 18.6% of the participants reported having witnessed a sudden death and 22% said they started CPR, with the main reason behind not conducting CPR being fear to make a mistake, which could be explained by the low level of knowledge among their population [2]. However, much lower rates of conducting CPR were reported by a study in Japan, in which 19% of participants witnessed a sudden death but only 4% of them started CPR [17]. Thankfully, a good number of people in Saudi Arabia report feeling comfortable regarding giving CPR to a member of their family (94.2%) and to a stranger (36.7%). Similarly, in a study conducted in Arizona, 80% of 750 participants reported feeling fine to perform CPR on a member of their family and 50% reported the same regarding a stranger [18].

When we put our participants in a situation of sudden cardiac arrest of one of their family members or friends, nearly one-third of participants (35.8%) would begin CPR. The most common reason for not conducting CPR was reportedly to be the fear to make a mistake (71.0%). A study conducted in Japan found that the scare of disease transmission was the most common cause (28%) [17].

On the other hand, when we asked our participants about the same situation occurring to strangers, the percentage of those willing to begin CPR decreased to 24.5%, though the most common cause remained a fear of performing it the wrong way (62%). However, the scare of disease transmission and legal issues increased to become 5.2% and 9.85%, respectively. In the study in Arizona, concerns about making a mistake was the most common cause of unwillingness to perform CPR (22.8%), while 17.7% reported hesitation due to potential legal issues [18]. In Japan, the most common cause was scare of transmission of diseases in 63% [17]. Again, these findings raise the value of finding a solution to increase the knowledge about CPR and correct existing mistaken beliefs.

5. Conclusion and Recommendations

The level of knowledge of our community regarding CPR is limited and very shallow compared to the knowledge levels of other neighbouring countries. Furthermore, some mistaken beliefs do exist. For that reason, we have some recommendations that we expect will increase the knowledge regarding CPR in Saudi Arabia. First of all, we highly recommend undertaking huge efforts to increase the awareness and knowledge of CPR. For example, we advise high-grade schools and universities to conduct a BLS course every year and to make it a routine requirement. We additionally advise our government to designate a BLS course as an obligatory requirement before getting a driver's license or prior to enrolment in some jobs that include contact with other people. Second, we suggest establishing a routine examination of CPR awareness and knowledge, which will assess the benefits of the conduction of BLS courses and attempt to elucidate the weak points so as to further improve the courses in the future. Finally, we believe it is also very important to assess the quality of CPR that has been performed, as this is a very important element in the success of resuscitation [5].

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

TABLE 10: Association of CPR application with previous CRP training.

Variable	Those who have not received CPR training N %	Those who have received CPR training N %	Total N %	p value
What BLS applications can you apply?				
I can open the airway	39 9.1%	19 11.0%	58 9.7%	0.0001**
I can control respiration	6 1.4%	1 0.6%	7 1.2%	
I can ventilate/conduct mouth-to-mouth ventilation	32 7.5%	23 13.3%	55 9.2%	
I can give chest compression	43 10.0%	27 15.7%	70 11.7%	
I can both ventilate and give chest compression	95 22.2%	82 47.7%	177 29.5%	
I do not know	215 50.2%	18 10.5%	233 38.8%	
What is the proper rate of chest compression /artificial ventilation during the CPR (compressions/breaths)?				
5/1	122 28.5%	51 29.6%	173 28.8%	0.0001**
15/2	79 18.4%	50 29%	131 21.8%	
30/2	23 5.3%	46 26.7%	69 11.5%	
Where must chest compression be applied?				
An upper part of the chest	82 19.2%	28 16.3%	110 18.3%	0.0001**
Middle of the chest	222 51.9%	111 64.5%	333 55.5%	
A lower part of the chest	52 12.1%	31 18.0%	83 13.8%	
Other	72 16.8%	2 1.2%	74 12.3%	
What must be the rate of the chest compression?				
At least 150 times per minute	12 2.8%	10 5.8%	22 3.7%	0.0001**
At least 100 times per minute	32 7.5%	39 22.7%	71 11.8%	
At least 50 times per minute	90 21.0%	72 41.9%	162 27.0%	
I do not know	294 68.7%	51 29.7%	345 57.5%	
How much force must be applied during chest compression?				
Enough that the rib cage moves down 1 cm to 2 cm	133 31.0%	68 39.5%	203 33.8%	0.004*
Moderate force, such that the rib cage moves down 5 cm to 6 cm	185 43.3%	84 48.8%	267 44.5%	
High force, such that the rib cage moves down 6 cm to 10 cm	35 8.2%	7 4.1%	42 7.0%	
As much force as possible	75 17.5%	13 7.6%	88 14.7%	

Additional Points

Limitations. This study has a few limitations that are very important to consider in its interpretation and in the context of further research efforts. One of the major weak points in this research is that, during the filling out of the questionnaire under our supervision, many of the participants asked us what to do in the case of some of the questions that did not have the answer choice of 'I have not seen this' or 'I have no idea.' Furthermore, a few of the participants asked us for more details about the meaning of some sentences that were not clear enough to them. We tried to explain the meaning of some choices to them, so we expect that some of the responses may be biased as a result of this. Moreover, this study was conducted only in a very limited area (the city of Jeddah), so the results may vary in other Saudi cities or countries.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Supplementary Materials

Supplementary material contains the questionnaire given to the participants. The questionnaire included 22 questions in Arabic and English language. (*Supplementary Materials*)

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RESEARCH ARTICLE

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Evaluation of public awareness, knowledge and attitudes towards basic life support: a cross-sectional study

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Abstract

Background: Out-of-hospital cardiac arrest is a major cause of mortality worldwide. When basic life support techniques are implemented quickly, the chance of survival is doubled. Therefore, this study evaluated public awareness, knowledge and attitudes towards basic life support in Jordan.

Methods: A descriptive, cross-sectional design with a convenience sample of 300 Jordanian adults aged over 18 years, recruited from three metropolitan areas in the northern, middle and southern regions.

Results: A total of 87 participants (29%) stated that they have received training about cardiopulmonary resuscitation (CPR). Among them, 20 participants (23%) received their training through the media. The highest response rate for cardiac arrest signs was chest pain ($n = 129$, 43%). Participants who received training had greater knowledge of the three signs of consciousness evaluation. The numbers of participants who received training and performed chest compression, mouth-to-mouth ventilation, and both compression and ventilation were higher than those who did not receive training. Overall, 256 participants (88.3%) reported that they would perform CPR on someone from their family without hesitation. The most important concern about performing CPR was making a mistake.

Conclusions: Improving knowledge about cardiopulmonary resuscitation is an important topic, which can be achieved by training the general population. Media can play an important role in this issue.

Keywords: Attitudes, Awareness, Jordan, Knowledge, Life support, Public

Background

Public awareness is of great importance, especially for life-saving information and skills. Globally, many countries emphasize related topics in educational institutions and workplaces. Death from sudden cardiac arrest remains very common worldwide [1, 2]. Approximately 50,000 people per year can survive until professional help arrives when basic life support (BLS) measures are performed properly. Out-of-hospital cardiac arrest (OHCA) causes 350,000 deaths each year in Europe [3]. In the US, the mortality rate due to OHCA is more than 90%, causing 276,000 deaths annually [4]. When the first person to witness OHCA uses an automated external

defibrillator (AED), the chance of survival doubles. However, this instrument is used in only 4% of cases [5, 6].

The performance of BLS is usually done in chains that can be improved by educational programs. The success rate of BLS can be improved when it is performed by lay people before professional help arrives. This is usually motivated and enhanced by increasing public knowledge, attitudes and understanding of the application of the BLS techniques. Different studies have been conducted worldwide to ascertain the general level of knowledge, attitudes, and awareness about BLS in community settings. The rate was approximately 70% in Slovenia, which was considered a high percentage, reflecting a particular policy whereby training is an obligatory part of learning to drive in the country [7]. However, the percentage of this country's population with up-to-date knowledge was very low at 2%. On the other hand, the

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rate was 78% among teachers in Belgium, demonstrating the impact of teaching [8].

BLS training rates vary worldwide, including the following rates: Washington, DC 78% [9], Poland 75% [10], West Australia 64.1% [11], Japan 58% [12], Turkey 40.3% [1], Ireland 28% [13], New Zealand 27% [14], and Hong Kong 21% [15]. The rates also differ according to the specific area where the study was done. For example, in an urban region of Arizona, the rate was 63.2%, but this dropped to 55.4% in a rural region [16].

Studies evaluating knowledge, attitude and awareness about BLS in Middle Eastern countries, including Jordan, are limited. In a study evaluating knowledge and attitudes towards cardiopulmonary resuscitation (CPR) among university students in Riyadh, Saudi Arabia, it was found that 31% did not have prior CPR knowledge [17]. Of those with previous knowledge, 85% felt that it was inadequate. The most common sources of information were television and movies. Approximately 13% of individuals had encountered a situation that required the use of CPR, while only 14% of them performed it. This was mostly due to lack of knowledge (48.2%). Overall, 88% of students would have liked to learn how to perform CPR. The authors concluded that the general attitude towards CPR was positive, but the knowledge on the topic was insufficient [17]. Thus, more focus should be placed on the improvement of CPR skills. In addition, more studies are needed to assess knowledge and attitudes towards CPR in the community.

Methods

The purpose of the current study was to evaluate public awareness, knowledge and attitudes towards BLS in Jordan.

Research Questions: (1) What is the level of awareness among Jordanian lay people regarding BLS? (2) What is the level of knowledge Jordanian lay people have about BLS? (3) Do Jordanian lay people have positive attitudes towards BLS? (4) Does previous training about BLS have an effect on the level of awareness, knowledge, and attitudes towards BLS?

Design, Sample, and Setting: A cross-sectional design with a convenience sampling method was used in this study. The participants who met the following inclusion criteria were included: (a) Jordanian nationality, (b) aged 18 years and above, (c) able to read and write Arabic, (d) signed informed consent, and (e) not graduated from or studying at any medical field colleges (medicine, pharmacy, nursing, dentistry, and laboratory). Those individuals were excluded because their university programs have mandatory courses about BLS training.

Data were collected from three major cities in the northern, middle, and southern areas of Jordan to be representative of the country as a whole. Three research

assistants collected the data, one for each area. They approached the participants every day from 8 am to 8 pm in shopping malls and public areas, which are similar in the three cities. The research assistants explained the study and the purposes to the participants, and if they agreed to participate, they signed the informed consent form and answered the questionnaire.

To make sure that the sample size was sufficient, a power analysis was performed using an online G*power sample size calculator. Research questions 1–3 were answered by descriptive statistics. Research question number 4 was answered by chi-squared test. Using this information and the assumptions of a power of .8, type 1 error of 0.05, and a medium effect size, the sample size needed was 107 participants. Therefore, we recruited 300 participants to allow for attrition and dropout.

Measurement

The researchers designed a questionnaire specifically for this study. This questionnaire was based on the latest American Heart Association (AHA) guidelines for BLS and was written in Arabic [18]. The questionnaire included two parts. Part one collected information about participants' sociodemographic characteristics (i.e., age, gender, marital status, education, and employment). Part two assessed their knowledge, attitudes and awareness about BLS. This latter part consisted of 22 questions about signs and symptoms of cardiac arrest, previous CPR experience, compression location and rate, if the participants were concerned about making mistakes when performing CPR, and people to whom they would provide CPR (Additional file 1).

Procedure of data collection and ethical consideration

The study was approved by the Institutional Review Board committee at the Applied Science Private University (Faculty 018). The principal investigator met with all research assistants and explained the purpose of the study and the questionnaire. Research assistants explained the study to the participants. They also ensured the participants that they had the right not to participate and to withdraw at any time. After this explanation, if the participants agreed to participate, they were asked to sign an informed consent form and to complete the questionnaire. The study was completely anonymous and no identifiers were required. Data were coded and entered into a password-protected computer, accessible only to the principal investigator and co-investigators.

Data analysis

Data analysis was done using SPSS version 21. Description of the sample was performed by descriptive statistics, including *n* (%) or mean $\pm$ SD. A chi-squared test was used to determine if there were differences between

those who received training and those who did not regarding the identification of cardiac arrest, action performed when witnessing cardiac arrest, and practical application of CPR. Any p value $< .05$ was considered statistically significant. All statistically non-significant results were reported as not significant (NS).

Results

Demographic characteristics

A total of 400 participants were invited to participate, of whom 300 agreed and filled out the questionnaire completely, comprising the sample of the study. The participants were distributed between males and females, with a mean age of 33.55 years. More than half of the sample was married and had a high school and university degree. A detailed description of the participants' characteristics is presented in Table 1.

CPR training

Among the whole sample, only 87 participants (29%) stated that they had received CPR training. Most of those received their training at school ($n = 33$, 37.9%),

followed by university ($n = 26$, 29.9%), and the media (television and internet) ($n = 20$, 23%).

Signs of cardiac arrest

The response rates for the signs of cardiac arrest are presented in Table 2. The highest rates were for (1) chest pain ($n = 129$, 43%), (2) respiratory standstill ($n = 119$, 39.7%), (c) loss of consciousness ($n = 114$, 38%), and (d) difficulty breathing ($n = 107$, 35.7%).

Recognizing cardiac arrest

Table 3 shows comparisons between those who had received training about CPR and those who had not regarding cardiac arrest signs, including (a) consciousness evaluation, (b) respiratory evaluation, and (c) circulation evaluation. Based on the table, participants who received training were more likely to know the three signs of consciousness evaluation than those who did not. For respiratory evaluation, the number of participants who received training and did not know that "no steam coming up in front of the mouth of the victim" was an incorrect answer was lower than the number of participants who did not receive training and did not know this answer. For circulation evaluation, the number of participants who had CPR training and could correctly feel a pulse in the vessels of the neck was higher than the number who did not receive training and could feel a pulse.

Seventy participants had witnessed a sudden cardiac arrest (23.3%). Among those, 42.8% called the ambulance, 20% told someone to call for help, 10% gave chest compression, 10% gave mouth-to-mouth breathing, 8.6% gave both chest compression and mouth-to-mouth breathing, and 8.6% just watched and left. The number of participants who received training and performed chest compression, mouth-to-mouth ventilation, and both massage and ventilation was higher than the number who performed these actions and did not receive training (Table 4).

Table 1 Demographic characteristics of the participants ($N = 300$)

Characteristic	Mean $\pm$ SD/ n (%)
Age	33.6 $\pm$ 11.0
Gender	
Male	139 (46.3)
Female	161 (53.7)
Marital status	
Married	181 (60.4)
Single	109 (36.3)
Divorced	10 (3.3)
Educational Level	
Elementary school	7 (2.3)
Preparatory school	45 (15)
Secondary school	92 (30.7)
Diploma	44 (14.7)
University	90 (30)
Post graduate	22 (7.3)
Job	
Governmental sector	79 (26.3)
Private sector	86 (28.7)
Self-employed	21 (7.0)
Retired	19 (6.3)
House wife	35 (11.7)
Student	35 (11.7)
Farmer	4 (1.3)
Not employed	21 (7.0)

Table 2 Response rates for the signs of cardiac arrest

Sign	^a n (%)
Chest pain	129 (43.0)
Respiratory standstill	119 (39.7)
Loss of consciousness	114 (38.0)
Difficulty in breathing	107 (35.7)
Cyanosis	76 (25.3)
Discontinuation of circulation	62 (20.7)
Nausea	47 (15.7)
The individual is not moving	45 (15.0)
Others	10 (3.3)

^aMore than one participant gave more than one answer

Table 3 Identification of cardiac arrest

Finding	Received training n (%)	Did not receive training n (%)	Total n (%)	P value
Consciousness Evaluation				
No response when called ^a	47 (15.7)	84 (28)	131 (43.7)	.015
No response when touched ^a	32 (10.7)	78 (26)	110 (36.7)	NS
No movement ^a	32 (10.7)	64 (21.3)	96 (32.0)	NS
Those who knew the 3 findings correctly	18 (6.0)	16 (5.3)	34 (11.3)	0.04
Those who knew 2 of the findings correctly	21 (7.0)	31 (10.3)	52 (17.3)	.036
Those who knew one of the findings correctly	78 (26.0)	181 (60.3)	259 (86.3)	NS
Respiratory Evaluation				
No respiratory movement ^a	36 (12.0)	94 (31.3)	130 (43.3)	NS
No respiratory sound ^a	31 (10.3)	63 (21.0)	94 (31.3)	NS
No air coming out from the mouth ^a	29 (9.7)	70 (23.3)	99 (33)	NS
No steam coming up in front of the mouth of the victim ^b	13 (4.3)	55 (18.3)	68 (22.7)	.027
Those who knew the 3 findings correctly	11 (3.7)	23 (7.7)	34 (11.3)	NS
Those who knew 2 of the findings correctly	13 (4.3)	43 (14.3)	56 (18.7)	NS
Those who knew one of the findings correctly	72 (24.0)	161 (53.7)	233 (77.7)	NS
Circulation Evaluation				
Lack of circulation signs ^a	25 (8.3)	73 (24.3)	98 (32.7)	NS
Not feeling a pulse in the vessels of the neck ^a	50 (16.7)	92 (30.7)	142 (47.3)	.017
Not feeling a pulse in the vessels of the arm ^a	91 (30.3)	28 (9.3)	119 (39.7)	NS
Those who knew the 3 findings correctly	4 (1.3)	13 (4.3)	17 (5.7)	NS
Those who knew 2 of the findings correctly	13 (4.3)	32 (10.7)	45 (15)	NS
Those who knew one of the findings correctly	86 (28.7)	211 (70.3)	297 (99.0)	NS

^aTrue reply, NS: Not significant^bFalse reply**CPR knowledge and skills**

Overall, 37% of the sample knew how to perform chest compression if they witnessed a sudden cardiac arrest. Moreover, 74.3% indicated that they could give both chest compression and ventilation. Regarding mouth-to-mouth ventilation, 47.7% of the sample said that they would perform it if they witnessed a sudden arrest. The number of participants who received training about CPR and knew the correct answers regarding the meaning of chest compression, heart rate, and the massage/ventilation ratio was higher than the number who knew the correct answers and did not receive training (Table 5).

CPR attitude

When the participants were asked "To whom would you provide CPR without hesitation?" the responses were as follows: 265 (88.3%) someone from the family, 110 (36.7%) friends, and 90 (30%) neighbors.

Concerns regarding CPR

The three most important concerns regarding CPR application for family members were (1) making a mistake ($n = 185$, 61.7%), (2) causing bone fractures ($n = 51$,

17%), and (3) stopping the heart ($n = 49$, 16.3%). The three most important concerns regarding CPR applications for strangers were (1) making a mistake ($n = 177$, 59%), (2) punishment because of legal reasons ($n = 87$, 29%), and (3) causing harm to organs ($n = 72$, 24%).

Discussion

CPR knowledge and skills are of great importance to the public and communities, as they are life-saving skills from which all members of society benefit. There have been no previous studies in Jordan concerning public knowledge and attitudes towards CPR. The participants were chosen from diverse and representative parts of Jordan, from among the lay population and different backgrounds. The participants' characteristics in this study were comparable to those in other similar and related studies [1]. Regarding CPR training, the results showed that 29% of the participants stated that they had received CPR training, higher than that reported in Hong Kong (21%) [15] and mainland China (25.6%) [19] and comparable to data reported elsewhere, including 27% in New Zealand [14] and 28% in Ireland [13]. Reported percentages from other countries, including

Table 4 Classification of participants who witnessed sudden cardiac arrest by training

Action	Received training n(%)	Did not receive training n (%)	Total n (%)	P value
Conduct only chest compression	5 (7.1)	2 (2.9)	7 (10.0)	.007
Conduct only mouth-to-mouth ventilation	5 (7.1)	2 (2.9)	7 (10.0)	.007
Conduct both, chest compression and ventilation	5 (7.1)	1 (1.4)	6 (8.6)	.01

Australia [11], Poland [10], and the US [9] were higher, with percentages of 58, 75 and 79%, respectively. In general, Jordan has a lower percentage of trained people in comparison to other countries, indicating that more focus is needed to train the public in life-saving skills to bring Jordan in line with international norms.

The results of this study reflect that the main sources of information and training are schools, followed by universities, and finally, the media (i.e., television and the internet). Studies conducted in nearby countries, such as Saudi Arabia, indicate that the most common sources of information on CPR are television and movies [17]. Although schools and universities are of great importance to increase information, the media can reach a broader population and can also cover a large number of people to raise more awareness. Inclusion of such simple training programs by trained personnel could have positive outcomes for public health and communities.

Participants in this study who received training were knowledgeable regarding the evaluation of the three signs of consciousness. Regarding respiratory evaluation, the number of participants who received training and did not know that “no steam coming up in front of the mouth of the victim means they have stopped breathing” is an incorrect answer was lower than that among those who did not receive training. For circulation evaluation, the number of participants who received CPR training and knew how to correctly feel the pulse in the vessels of the neck was higher than the number with this knowledge who did not receive training. These results highlight the importance of training programs and ensuring that necessary information is both fully understood and practiced by trainees.

The response rates for the signs of cardiac arrest showed that the highest rates were for chest pain, respiratory standstill, loss of consciousness and difficulty

breathing. Similar data were reported in a study conducted in Turkey, in which respondents indicated that the highest rates were for signs of cardiac arrest (60.7%), followed by 49.3% who answered cessation of circulation, and finally cessation of breathing (40.7%) [1]. Therefore, chest pain and circulation are given first priority by lay people, who then look for respiration. This is in line with the new guidelines of the AHA (to perform chest compression, then attend to breathing, and finally circulation).

In this study, the participants who witnessed sudden cardiac arrest comprised 23.3% of the total sample. Among those, nearly half stated that they called the ambulance, and the rest with equal or lower percentages responded that they called for help, gave chest compression, and gave mouth-to-mouth breathing. The lowest responses were for chest compression and mouth-to-mouth breathing and ‘just watched and left’. These results reflect the nature of Jordanian culture and how people are willing to help each other, especially during emergency situations. However, it is culturally insensitive to give mouth-to-mouth breathing, especially between men and women.

In this study, the numbers of participants who received training and mentioned that they performed chest compression, mouth-to-mouth ventilation, and both massage and ventilation were greater than those who performed these actions and did not receive training. The majority of the respondents (74.3%) indicated that they can give both chest compression and ventilation. The number of participants who received training about CPR and knew the correct answers regarding the meaning of chest compression, heart rate, and the massage/ventilation ratio was higher than the number who knew the correct answers and did not receive training. Training sessions were beyond the scope of the current study; we merely asked participants if they had attended

Table 5 Practical application of CPR between those who received training and those who did not

Item	Received training n(%)	Did not receive training n(%)	Total n (%)	P value
Chest compression meaning ^a	37 (12.3)	51 (17.0)	88 (29.3)	.001
Massage rate ^a	37 (12.3)	41 (13.7)	78 (26)	.000
Massage location ^a	31 (10.3)	56 (18.7)	87 (29)	NS
Massage depth ^a	29 (9.7)	77 (25.7)	106 (53.3)	NS
Massage/ventilation ratio ^a	33 (11.0)	30 (10.0)	63 (21.0)	.000

NS not significant

^aNumbers reflect correct answers

training or not. However, such information forms the basics of any CPR training course, even if it is learned through the media. These results indicate the importance of training programs, which empower people to provide help in emergency situations.

A high percentage of participants in this study showed no hesitation to provide CPR to their family members; the next highest percentage was to friends and finally, to neighbors. Concerns regarding CPR applications for family and strangers were classified in priority order. For family members, the highest percentage of concern was making mistakes (61.7%), and the lowest was punishment because of legal reasons (15%). Concerns regarding performing CPR on strangers were classified in priority order from making a mistake, to concern of punishment because of legal reasons (59%), with the least concern about causing a bone fracture (18.3%). The lowest priority concern for performing CPR to both family and strangers was contamination by blood or vomit. This indicates that life-saving attempts for family members and strangers will be given high priority, with apprehension about making mistakes being the most important concern. These results indicate the high necessity of education and training programs for the community.

Chair et al. [15] mentioned that people with full-time jobs and higher levels of education were more likely to have received CPR training. Respondents stating they had received CPR training were more willing to try it if needed at home (odds ratio = 3.3; 95% confidence interval, 2.4–4.6; $P < 0.001$), and on strangers in the street (4.3; 3.1–6.1; $P < 0.001$) in case of emergencies. Overall, the CPR knowledge of the respondents was low (median = 1, out of 8). More than 90% of the sample in this study was employed, and more than half of the sample also had diplomas and higher degrees of education. These characteristics support the idea of a greater willingness to conduct CPR among educated and employed people.

In their study, Chen et al. [19] described the concerns regarding CPR applications for family members and strangers. The questionnaire included individual information, current status of bystander CPR training, and individuals' willingness and attitudes towards performing CPR. The authors found that 25.6% of lay people received CPR training, the majority (98.6%) of whom would perform CPR on their family members, but fewer (76.3%) were willing to perform it on strangers. Most respondents (53.2%) were worried about legal issues. When laws were implemented to protect bystanders who give first aid, the number of laypersons who were not willing to perform CPR on strangers dropped from 23.7 to 2.4%. Although the number of people in China who knew CPR was increasing over time, CPR training was still much less common than in many developed countries. The barriers as mentioned by the authors

were that laypersons were not well trained, and they feared being prosecuted for unsuccessful CPR. The authors also recommended a need for more accredited CPR training courses, and they noted that laws should be passed to protect bystanders who provide assistance.

There are some centers providing CPR training for lay persons in different areas in Jordan, including in the north, middle, and south. However, to date, there is no legislation on the part of the Ministry of Health and the Ministry of Interior to protect laypersons in case they perform CPR on victims and mistakes occur. For this reason, some people will hesitate to provide CPR if the victim is not one of their family members. The relevant government bodies should be informed about such results in order to improve outcomes and decrease mortality and morbidity after cardiac arrest, especially OHCA.

Conclusion and recommendations

The results of this study indicate the importance of continuing to train the population in CPR knowledge and skills; specifically, CPR education programs and evaluations of their effectiveness are needed. The media can play a role in increasing the knowledge of the public, hence the authors recommend promoting the training programs in the media, utilizing cheap and effective technologies such as social media to reach the general population, as well as providing more formal instruction through schools and universities. In addition, national bylaws should protect those who provide assistance to people with heart failure in such cases.

Limitations

The major limitation of this study was the use of a cross-sectional design with a convenience sampling method. Moreover, we used the 2010 AHA criteria and did not ask about the timing for when participants received their training.

Additional file

Additional file 1: Questionnaire. Description of data: Data collection instrument in Arabic and English. (DOCX 30 kb)

Abbreviations

AED: Automated external defibrillator; AHA: American Heart Association; BLS: Basic life support; CPR: Cardiopulmonary resuscitation; OHCA: Out-of-hospital cardiac arrest; SPSS: Statistical package for social sciences

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Availability of data and materials

All data generated or analyzed during this study are included in this published article and its supplementary information files.

Authors' contributions

SJ Was the primary investigator and contributed in all facets of the study including study conception/design, data collection, data analysis, and was the lead author for all drafts of the manuscript. MJ contributed to study conception/design, data analysis, and edited all drafts of the manuscript. MEA contributed to study conception/design, was the primary data analyst, and edited all drafts of the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

Approval was granted by the IRB committee at the Applied Science Private University. All participants signed an informed consent.

Consent for publication

Not applicable; the study is anonymous.

Competing interests

The authors declare that they have no competing interests.

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BMJ Open Awareness, knowledge and attitudes towards cardiopulmonary resuscitation among people with and without heart disease relatives in South China: a cross-sectional survey

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ABSTRACT

Objectives To assess the awareness, knowledge and attitudes towards cardiopulmonary resuscitation (CPR) among relatives of people with and without heart disease and their influence in South China.

Design This is a cross-sectional survey. Logistic regression was used to evaluate the demographic factors associated with CPR training, learning and knowledge.

Setting The study was conducted in two hospitals, the largest cardiovascular institute and the largest eye care centre in South China.

Participants Healthy individuals who accompanied their relatives with heart disease to the outpatient department of cardiovascular disease and systemically healthy patients who came for regular ophthalmic examination and had no relatives with heart disease were consecutively recruited for the study. A total of 1644 respondents with heart disease relatives and 813 respondents without heart disease relatives completed the survey.

Results Thirty three per cent of respondents never heard of CPR and only 11% had received CPR training. Factors associated with a higher rate of CPR training were higher level of education and income ($p<0.001$). Most respondents stated that CPR training was necessary and would like to learn CPR. However, only one-third considered it beneficial to perform CPR as a layperson. In addition, healthcare respondents ($p<0.001$), younger ($p<0.05$) and more educated respondents ($p<0.001$) earned higher scores on the knowledge of CPR skills. Only 5.3% had perfect scores on a CPR skills test. Notably, respondents with relatives suffering from heart disease had significantly less training experience and CPR knowledge than those without ($p<0.001$).

Conclusions Although the attitudes towards learning CPR are very positive, there was a lack of knowledge on this topic among the general public. This study demonstrates an urgent need to boost awareness and training in CPR in South China, especially among people whose relatives have heart disease.

INTRODUCTION

Cardiac arrest is one of the leading causes of death worldwide and predominantly affects

Strengths and limitations of this study

- This is the first study to investigate an association between cardiopulmonary resuscitation (CPR) awareness and whether respondents have relatives with heart disease or not.
- Factors influencing CPR training, learning and knowledge were shown in the current study. These findings provide insights and strategies to improve layperson's response to cardiac arrest through public education campaigns.
- Surveys in hospitals may lead to sampling bias, limiting its generalisability. However, it may still lead to useful information that helps direct public health resources.
- The nature of cross-sectional survey may lead to recall bias.

patients with underlying heart disease.¹ The global incidence of out-of-hospital cardiac arrest is 30.0 to 97.1 per 100 000 person-years.² From 1978 to 2016, the average incidence of cardiac arrest in China was 40.7 per 100 000 person-years and the total mortality and morbidity rate were as high as 96.0%.³ Most cases of cardiac arrests are associated with previously diagnosed cardiovascular disease. Heart disease remains the predominant cause compared with non-cardiac causes.^{1,4} Studies have shown that the risks of death and anoxic brain injury of cardiac arrest victims decreased when bystander cardiopulmonary resuscitation (CPR) was performed before emergency medical services.⁵ However, the reported rate of bystander CPR was 55.2% in England,⁴ compared with less than 6% in China.⁶ The low rate of CPR means that sudden out-of-hospital cardiac arrest patients are denied a timely rescue. Most cardiac arrests occur at home (74.5% in Beijing, China; 83.3% in

**Table 1** Sociodemographic characteristics of the respondents with and without heart disease relative

Characteristics	Number of respondents (n, %)			P value*
	All (n=2457)	Group 1 (n=1644)	Group 2 (n=813)	
Age (year)				<0.001
18–29	799 (32.5)	534 (32.5)	265 (32.6)	
30–39	984 (40.0)	707 (43.0)	277 (34.1)	
40–49	398 (16.2)	226 (13.8)	172 (21.2)	
50–59	194 (7.9)	109 (6.6)	85 (10.5)	
>60	82 (3.3)	68 (4.1)	14 (1.7)	
Gender				0.042
Female	1240 (50.5)	806 (49.0)	434 (53.4)	
Male	1217 (49.5)	838 (51.0)	379 (46.6)	
Education				<0.001
Primary or below	136 (5.5)	116 (7.1)	20 (2.5)	
Middle school	677 (27.6)	550 (33.5)	127 (15.6)	
High school	587 (23.9)	408 (24.8)	179 (22.0)	
College or higher	1057 (43.0)	570 (34.7)	487 (59.9)	
Occupation				<0.001
Education	133 (5.4)	73 (4.4)	60 (7.4)	
Service	270 (11.0)	162 (9.9)	108 (13.3)	
Civil servant	94 (3.8)	53 (3.2)	41 (5.0)	
Farmer	527 (21.4)	464 (28.2)	63 (7.8)	
Commercial	532 (21.7)	316 (19.2)	216 (26.6)	
Others	812 (33.0)	523 (31.8)	289 (35.6)	
Healthcare	89 (3.6)	53 (3.2)	36 (4.4)	
Location				<0.001
Urban	1282 (52.2)	674 (41.0)	608 (74.8)	
Rural	1175 (47.8)	970 (59.0)	205 (25.2)	
Income level†				<0.001
Low	529 (21.5)	426 (25.9)	103 (12.7)	
Moderate	1766 (71.9)	1153 (70.1)	613 (75.4)	
High	162 (6.6)	65 (4.0)	97 (15.8)	

Group 1: relatives of patients with heart disease, group 2: relatives of patients without heart disease.

*All P values between the two groups were obtained using χ^2 test.

†Low, less than \$5,000/year; moderate, \$5,000/year to \$50,000/year; high, more than \$50,000/year (according to China household finance survey in 2017).

England), and more than half are witnessed.⁴⁷ If these witnesses have CPR capabilities, survival rates of cardiac arrest patients may increase significantly.

Previous studies have reported the awareness of CPR among laypersons in different countries.^{8–11} However, no research focused on the difference between family members of patients with and without heart disease. In the current study, we investigated the awareness, knowledge and attitudes towards CPR among relatives of patients with heart disease versus those without relatives suffering from the ailment in southern China. The results may add useful insights and provide strategies to promote broader adaptation of CPR among the general public.

METHOD

Subjects and methods

A cross-sectional survey was conducted from December 2018 to December 2019. The first arm of the study consisted of healthy individuals who accompanied their relatives with heart disease to the outpatient department of cardiovascular disease in Guangdong Provincial People's Hospital, the largest cardiovascular institute in South China (Group 1). The second arm included systemically healthy patients of the Zhongshan Ophthalmic Centre, the largest eye centre in South China, for routine examination and had no known relatives with heart disease (Group 2). Consecutive participants were at least 18 years

Table 2 Additional sociodemographic characteristics of the patients with heart disease

Characteristics	Number of respondents/ patients (n=1644, %)
Responders' relation with the patients	
Parent	375 (22.8)
Spouse	174 (10.6)
Children	877 (53.4)
Sibling	76 (4.6)
Friend	142 (8.6)
Heart diseases of the patients	
CHD	1016 (61.8)
VHD	258 (15.7)
CAD	75 (4.6)
Aortic dissection	54 (3.3)
Arrhythmia	39 (2.4)
HBP	56 (3.4)
Unclear	104 (6.3)
Others	42 (2.6)
Number of clinic visits of the patients	
1	463 (28.2)
2–3	582 (35.4)
>4	599 (36.4)
Number of surgeries of the patients	
0	139 (8.5)
1	1199 (72.9)
2–3	102 (6.2)
>4	14 (0.9)
Unclear	190 (11.6)

CHD, congenital heart disease; VHD, valvular heart disease; CAD, coronary artery disease; HBP, hypertension.

old and had no psychological or psychiatric deficiencies. The sample size was calculated by software PASS V.16.0 (NCSS, LLC, USA). Group sample sizes of 1632 and 816 cases produced a two-sided 95% CI for the population OR of 0.150 when the estimated sample proportion 1 was 0.18, the estimated sample proportion 2 was 0.04 and the sample OR was 0.20. All samples were reached. In each hospital, three trained interviewers conducted face-to-face interviews using a standardised questionnaire, after informed consent was obtained from all participants. This study was approved by the Institutional Review Board of both hospitals and adhered to the tenets of the Declaration of Helsinki.

Questionnaire design

The design of the questionnaire was based on published literatures about CPR awareness,^{12–14} which is described as knowing and having knowledge of CPR among general public. Items in the first section of the questionnaire (10

questions about demographic characteristics) included gender, age, educational level, occupation, location of residence and income. Four additional questions about the types of cardiovascular diseases, the number of previous visits to the hospital and the number of surgical treatments of the patients with heart disease were collected only in the first arm of the study. Usually, the follow-up interval is 3–6 months in clinical work. So the participants were divided into three categories for further analysis according to the duration of suffering heart diseases: 3–6 months, 6–12 months and over 12 months. The second section consisted of 11 questions regarding CPR training (questions 1–3), willingness to learn CPR (questions 4, 6 and 11), attitude towards CPR learning (question 5) and CPR knowledge (question 7 to 10) (see online supplemental file 1). A total of four points were assigned to answers to questions 7–10 at the ratio of 1:1:1:1. Every correct answer was awarded one point while incorrect answers or answer as 'unclear' were graded zero. Thus, the total score ranged from 0 to 4 for these four questions. Respondents who earned the higher score were considered more knowledgeable about CPR. On completion, correct answers of question 7 to 10 were given to the participants for educational purposes.

Draft questionnaires were administered to 20 patients in a pilot survey in both hospitals before initiation.

Statistical analyses

All questionnaires were validated and verified. Those with incomplete or duplicate responses were excluded. Analyses were conducted using SPSS V.24.0 (IBM SPSS Statistics for Windows, V.24.0. IBM Armonk, New York, USA). We compared the distribution of data between the two hospitals using χ^2 test. Univariable and multivariable logistic regression analyses were used to detect the factors (having vs not having relatives with heart disease, gender, age, education, occupation, location, income level, relation to patient, number of prior clinic visits and number of surgeries for cardiovascular disease) impacting respondents' knowledge, and willingness and attitude towards learning CPR. χ^2 test was used to examine the difference of CPR knowledge scores between trained and untrained respondents. Ordinal logistic regression analysis was used to investigate factors affecting knowledge of CPR. All variables with $p < 0.05$ in the univariable regression models were included in the multivariable regression analysis. Significant level was at $p < 0.05$.

Participant and public involvement

Participants and the public were not involved in the design or planning of the study. The study had no patient advisers. Participants were not involved in recruiting other participants or conduct of the study. Outcomes were self-reported by participants according to questionnaires. The study results are not planned to be disseminated to the participants.

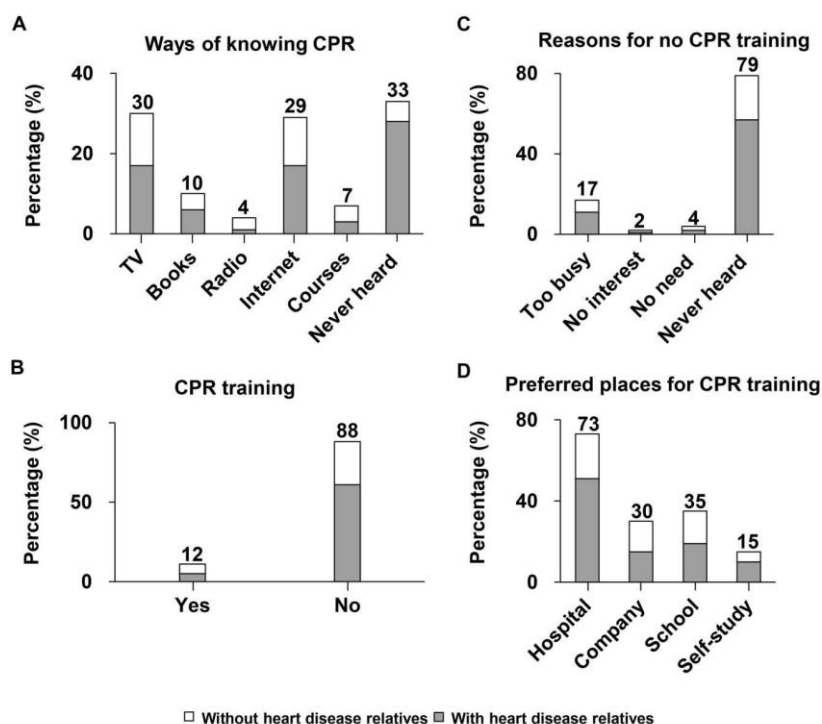


Figure 1 Status of CPR training. (A) Ways of getting to know CPR (multiple choices); (B) percentage of attending CPR training courses; (C) reasons for no CPR training (multiple choices); (D) preferred places for CPR training (multiple choices). The sum of percentage is labelled on the top of each bar. CPR, cardiopulmonary resuscitation.

RESULTS

Of 2557 questionnaires distributed in total, 2457 (96.1%) questionnaires were completed and valid. Among the completed and valid questionnaires, 1644 (66.9%) respondents affirmed that they had relatives with heart disease (group 1) while 813 (33.1%) respondents did not (group 2). Basic demographic characteristics are presented in table 1.

Among the respondents, half of them were men and 72.6% were between 18 and 39 years old. Group 2 had higher education level, higher income and more commonly urban residents than group 1. The additional information about the respondents and the patients with heart disease are shown in table 2.

CPR training

Thirty-three per cent of respondents (799/2457) never heard of CPR. The remaining two-third of respondents (1658/2457) primarily knew about CPR was through television (30%) and the internet (29%) (figure 1A). Few respondents (12%) reported attending CPR training courses (figure 1B). Regression analysis revealed that higher education attainment is associated with higher

rate of CPR training, and not surprisingly health-care professionals acquired more training than others ($p < 0.001$). In addition, lower income level was correlated with less CPR training experience (OR 0.47; 95% CI 0.24 to 0.92; $p = 0.028$). Surprisingly, group 1 respondents had less exposure to CPR training than their counterparts in group 2 (OR 0.54; 95% CI 0.40 to 0.73; $p < 0.001$). The difference of relationship to patients with heart disease, the numbers of clinic visits and heart surgeries did not have a significant impact on CPR training of group 1 ($p > 0.05$) (table 3).

Seventy-nine percent of people who had not taken training courses indicated they have never heard of CPR courses (FIG. 1C). The desired venues where respondents wished to be trained (multiple choices) were as follows: 73% in the hospital; 35% in the school; 30% in the company and 15% self-learning (FIG. 1D).

Attitude towards CPR learning

A vast majority of respondents considered knowledge about CPR necessary (90%) and were willing to (92%) attend courses (figure 2), especially among those younger than 50 years old ($p < 0.05$). On the other hand, female

Table 3 Logistic regression analysis of potential factors on receiving CPR training or not

Variable	Univariable regression		Multivariable regression*	
	OR (95% CI)	P value	OR (95% CI)	P value
Age (year)				
18–29	2.67 (1.06 to 6.73)	0.038	2.52 (0.83 to 7.62)	0.103
30–39	1.96 (0.78 to 4.94)	0.155	2.08 (0.69 to 6.26)	0.195
40–49	1.58 (0.60 to 4.15)	0.354	1.90 (0.61 to 5.94)	0.271
50–59	1.11 (0.38 to 3.21)	0.853	1.56 (0.45 to 5.44)	0.485
>60	Reference		Reference	
Female sex	1.01 (0.79 to 1.29)	0.933		
Education				
Primary or below	0.03 (0.004 to 0.20)	<0.001	0.10 (0.01 to 0.73)	0.023
Middle school	0.13 (0.08 to 0.20)	<0.001	0.31 (0.18 to 0.52)	<0.001
High school	0.29 (0.20 to 0.41)	<0.001	0.47 (0.31 to 0.69)	<0.001
College or higher	Reference		Reference	
Occupation				
Education	0.05 (0.03 to 0.10)	<0.001	0.04 (0.02 to 0.08)	<0.001
Service	0.03 (0.01 to 0.05)	<0.001	0.04 (0.02 to 0.07)	<0.001
Civil servant	0.07 (0.04 to 0.15)	<0.001	0.06 (0.03 to 0.13)	<0.001
Farmer	0.00 (0.004 to 0.01)	<0.001	0.03 (0.01 to 0.07)	<0.001
Commercial	0.03 (0.02 to 0.05)	<0.001	0.03 (0.02 to 0.06)	<0.001
Others	0.03 (0.02 to 0.05)	<0.001	0.04 (0.02 to 0.07)	<0.001
Healthcare	Reference		Reference	
Location				
Urban	2.97 (2.25 to 3.93)	<0.001	1.27 (0.90 to 1.80)	0.176
Rural	Reference		Reference	
Income level†				
Low	0.18 (0.10 to 0.31)	<0.001	0.47 (0.24 to 0.92)	0.028
Moderate	0.58 (0.39 to 0.87)	0.009	0.82 (0.52 to 1.29)	0.383
High	Reference		Reference	
Heart disease relative				
Yes	0.39 (0.31 to 0.50)	<0.001	0.54 (0.40 to 0.73)	<0.001
No	Reference		Reference	
Relation to patient				
Parent	1.95 (0.82 to 4.66)	0.132		
Spouse	2.06 (0.74 to 5.72)	0.166		
Children	1.24 (0.53 to 2.91)	0.620		
Sibling	1.25 (0.35 to 4.44)	0.728		
Friend	Reference			
Number of clinic visits				
1	1.04 (0.60 to 1.80)	0.900		
2–3	1.00 (0.60 to 1.62)	0.963		
>4	Reference			
Number of surgeries				
0	1.84 (0.67 to 5.06)	0.240		
1	1.92 (0.85 to 4.35)	0.116		
2–3	2.68 (0.90 to 7.98)	0.076		

Continued



Table 3 Continued

Variable	Univariable regression		Multivariable regression*	
	OR (95% CI)	P value	OR (95% CI)	P value
>4	1.88 (0.25 to 14.12)	0.541		
Unclear	Reference			

*All variables with $p < 0.05$ in the univariable regression models were included in the multivariable regression analysis.

†Low, less than \$5,000/year; moderate, \$5,000/year to \$50,000/year; high, more than \$50,000/year (according to China household finance survey in 2017).

CPR, cardiopulmonary resuscitation.

respondents (OR 0.74; 95% CI 0.59 to 0.93; $p = 0.011$), those with lower education attainment ($p < 0.001$), those whose occupation were 'farmer' (OR 0.26; 95% CI 0.08 to 0.87; $p = 0.029$) or 'other' in the questionnaires (OR 0.23; 95% CI 0.07 to 0.75; $p = 0.015$), and those who had only one visit to cardiac clinic (OR 0.71; 95% CI 0.50 to 0.99; $p = 0.046$) deemed CPR learning less necessary and were less willing to attend training courses.

However, only 32% of respondents felt that it is beneficial for a layperson to perform CPR, 28% of respondents considered it harmful, while the remaining were unsure (figure 3). Further regression analysis showed that respondents below middle school education level ($p < 0.05$) and in non-medical occupations ($p < 0.05$) were less likely to believe in the value of CPR.

Knowledge of CPR skill

Only 5.3% among all of the 2457 respondents attained perfect scores on the four questions testing the knowledge about CPR. Respondents with previous training in CPR had higher scores (median=3) than those without

(median=1) ($p < 0.001$, table 4), as did those younger than 50 years old ($p < 0.05$), those with higher educational attainment ($p < 0.001$) and people in the healthcare field ($p < 0.001$) (table 5, figure 4).

However, group 1 received lower scores on CPR skills than group 2 (OR 0.56; 95% CI -0.48 to 0.66; $p < 0.001$). Among group 1, siblings of heart disease patients scored lower (OR 0.48; 95% CI 0.28 to 0.81; $p = 0.006$), while those whose relatives had never undergone the heart surgery scored higher (OR 1.81; 95% CI 1.19 to 2.72; $p = 0.005$) (table 5).

DISCUSSION

CPR is an important part of the armamentarium for first aid responders. The general public is at a lack of CPR awareness and training experience. The current survey in a major metropolitan area showed that two-thirds of respondents have heard of CPR but very few have been trained. Previous studies showed the rates of brain damage and mortality among cardiac arrest patients decrease after CPR administration.⁵ Although most respondents stated that CPR is necessary and would like to learn about it, only 32% regarded performance of CPR by a layperson to be beneficial. Only 5.3% respondents knew the whole manifestations of cardiac arrest, content and golden time of CPR and the proper rate of chest compression to artificial ventilation. Education and income levels were

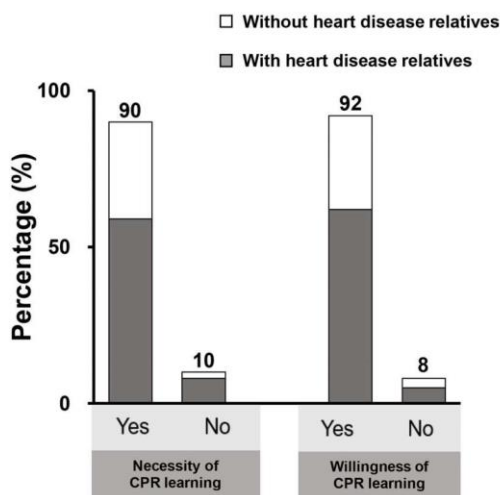


Figure 2 Necessity and willingness of CPR learning. The sum of percentage is labelled on the top of each bar. CPR, cardiopulmonary resuscitation.

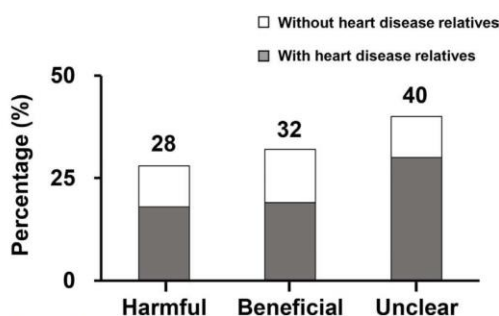


Figure 3 Attitude towards performing CPR by layperson. The sum of percentage is labelled on the top of each bar. CPR, cardiopulmonary resuscitation.

Table 4 Number of correct answers on knowledge of CPR skill in trained and untrained respondents

Number of correct answers on CPR knowledge	All (n=2457)	With CPR training (n=284)	Without CPR training (n=2173)	P value*
0	581 (23.6)	5 (1.8)	576 (26.5)	<0.001
1	551 (22.4)	16 (5.6)	535 (24.6)	
2	714 (29.1)	80 (28.2)	634 (29.2)	
3	481 (19.6)	112 (39.4)	369 (17.0)	
4	130 (5.3)	71 (25.0)	59 (2.7)	

* χ^2 test was performed for comparison between groups.
CPR, cardiopulmonary resuscitation.

strong positive predictors of the rate of CPR training and knowledge. However, to our surprise, respondents having relatives with heart disease had less training and knowledge about CPR. As far as we know, this is the first study to assess for an association between CPR awareness and training experience with or without heart disease among family members.

Only 12% of people had received CPR training in our study. Similar trends (3%–25%) were observed in other cities in China.^{8 9 15 16} In contrast, the rates of CPR training are higher in developed countries. Eighty-three per cent out of 9022 surveyed in the USA had received or are currently receiving CPR training.¹² Fifty-six per cent of 1076 respondents in Australia reported receiving CPR training previously, with 22% trained less than a year.¹¹

The difference in rate of CPR training between China and some developed countries may lie in differences in the promotion of the practice among the general public. In our study, 33% had never heard of CPR, compared with only 9.9% surveyed in Australia.¹¹ Among our respondents who are aware of CPR, most were introduced by TV or the internet, but 79% did not have access to training. As far as we are concerned, inactive promotion of CPR in China renders most information invisible to the public. Furthermore, because China does not mandate first-aid training for non-medical citizens, it fails to provide a platform for people to get informed. Previous studies in the USA have shown significant positive outcomes as a result of mandatory CPR training.¹⁷ Among 9022 participants, people in states with mandatory training programmes were 34% more likely to be currently trained than those in states without such programmes.¹⁷

We found that people who are better educated, engage in medical professions or are in higher income strata, and younger respondents have a greater chance of receiving CPR training. Similar correlation with greater educational attainment, higher income and younger age is found in other studies.^{8 11 18} It is reported that low education and low income are causal risk factors of cardiovascular disease.^{19 20} Therefore, living in rural areas with low level of education and low income was possible factors of low CPR training rate among relatives of patients with heart disease.

To our surprise, people with close relatives with heart disease had lower CPR training rates than those without. The more times of clinic visit, the longer duration of heart disease. Therefore, relatives of patients suffering heart disease have enough time to learn CPR but their participation and attainment of CPR training did not improve significantly. As patients' disease progresses, their relatives' attention paid to the learning of CPR continues to waver. Similar findings were worked out in America, which observed low participation rates of CPR training among family members of cardiac patients.²¹ The finding might reflect the lack of popularisation of CPR training from hospitals and other medical organisations to the target population. Although there are few evidence for improvement in patient outcomes from targeted Basic life support training for family members,²² previous research showed that cardiac patients and their spouses had learning needs of CPR after an acute cardiac event.²³ According to our survey, most responders would like to receive CPR training in hospitals and workplaces, but unfortunately they are still not widely available. Given the significant benefits, governments should actively promote CPR and provide funding for training programmes.

In the current study, although most participants have not received CPR training, a strong majority showed interest in learning. Ninety per cent regarded learning CPR as necessary and 92% were willing to take free training lessons. Our study revealed at least as much if not greater desire than other populations in or outside China. Among 2763 respondents in Wuhan, 77% were willing to learn CPR.⁹ In Crimea, 52% of 384 respondents provided an affirmative answer to the question of whether they wish to attend CPR training.²⁴ Ninety per cent of 947 university students in Saudi Arabia wanted to receive CPR training.²⁵

In our survey, people aged below 50 tended to have a more positive attitude towards CPR. Similar trends were observed in Crimea, where people aged ≥ 60 were mostly untrained and unwilling to learn CPR.²⁴ Women were also found to be less willing to attend CPR courses. Because performing CPR can be physically demanding, elderly people and women may have difficulties performing this task and thus feel reluctant to learn.

Table 5 Ordinal logistic regression analysis of potential factors on knowledge of CPR skill scores (scale from 0 to 4, 0 indicating lowest level, 4 indicating highest level)

Variable	Univariable regression		Multivariable regression*	
	OR (95% CI)	P value	OR (95% CI)	P value
Age				
18–29 years	3.34 (2.20 to 5.05)	<0.001	2.44 (1.57 to 3.78)	<0.001
30–39 years	2.30 (1.52 to 3.49)	<0.001	1.76 (1.14 to 2.72)	0.010
40–49 years	2.47 (1.60 to 3.82)	<0.001	1.91 (1.21 to 3.00)	0.005
50–59 years	1.81 (1.13 to 2.89)	0.014	1.73 (1.06 to 2.83)	0.027
>60 years	Reference		Reference	
Female sex	1.28 (1.11 to 1.47)	0.001	1.14 (0.98 to 1.32)	0.083
Education				
Primary or below	0.08 (0.06 to 0.12)	<0.001	0.18 (0.12 to 0.26)	<0.001
Middle school	0.22 (0.18 to 0.26)	<0.001	0.38 (0.30 to 0.47)	<0.001
High school	0.43 (0.36 to 0.52)	<0.001	0.60 (0.49 to 0.73)	<0.001
College or higher	Reference		Reference	
Occupation				
Education	0.14 (0.08 to 0.23)	<0.001	0.12 (0.08 to 0.21)	<0.001
Service	0.08 (0.05 to 0.12)	<0.001	0.11 (0.07 to 0.18)	<0.001
Civil servant	0.15 (0.09 to 0.26)	<0.001	0.15 (0.09 to 0.26)	<0.001
Farmer	0.03 (0.02 to 0.05)	<0.001	0.09 (0.06 to 0.14)	<0.001
Commercial	0.11 (0.07 to 0.16)	<0.001	0.12 (0.08 to 0.19)	<0.001
Others	0.09 (0.06 to 0.13)	<0.001	0.12 (0.08 to 0.19)	<0.001
Healthcare	Reference		Reference	
Location				
Urban	2.45 (2.11 to 2.83)	<0.001	1.18 (0.99 to 1.40)	0.062
Rural	Reference		Reference	
Income level†				
Low	0.27 (0.20 to 0.37)	<0.001	0.78 (0.55 to 1.11)	0.156
Moderate	0.61 (0.45 to 0.81)	0.001	0.96 (0.70 to 1.28)	0.763
High	Reference		Reference	
Heart disease relative				
Yes	0.38 (0.33,0.45)	<0.001	0.56 (0.48 to 0.66)	<0.001
No	Reference		Reference	
Relation to patient				
Parent	0.82 (0.58 to 1.16)	0.262	0.91 (0.63 to 1.31)	0.623
Spouse	0.65 (0.44 to 0.97)	0.035	0.99 (0.65 to 1.51)	0.969
Children	0.86 (0.63 to 1.19)	0.353	1.05 (0.75 to 1.50)	0.761
Sibling	0.50 (0.30 to 0.84)	0.008	0.48 (0.28 to 0.81)	0.006
Friend	Reference		Reference	
Number of clinic visits				
1	0.67 (0.54 to 0.87)	<0.001	0.83 (0.66 to 1.05)	0.114
2–3	0.88 (0.72 to 1.08)	0.231	0.99 (0.80 to 1.22)	0.940
>4	Reference		Reference	
Number of surgeries				
0	2.33 (1.57 to 3.46)	<0.001	1.81 (1.19 to 2.72)	0.005
1	1.57 (1.19 to 2.08)	0.002	1.53 (1.14 to 2.05)	0.004

Continued

Table 5 Continued

Variable	Univariable regression		Multivariable regression*	
	OR (95% CI)	P value	OR (95% CI)	P value
2-3	1.43 (0.92 to 2.20)	0.107	1.48 (0.94 to 2.34)	0.088
>4	1.73 (0.66 to 4.57)	0.267	1.05 (0.38 to 2.89)	0.927
Unclear	Reference		Reference	

*All variables with $p < 0.05$ in the univariable regression models were included in the multivariable regression analysis.

†Low, less than \$5,000/year; moderate, \$5,000/year to \$50,000/year; high, more than \$50,000/year (according to China household finance survey in 2017).

Despite respondents' enthusiasm in learning CPR, a solid majority (68%) doubt the benefits of CPR when performed by non-medical professionals. Previous studies

showed that fear of layperson CPR was general. Worrying about causing additional harm, contacting infectious diseases, lawsuits and the outcome of a failed resuscitation

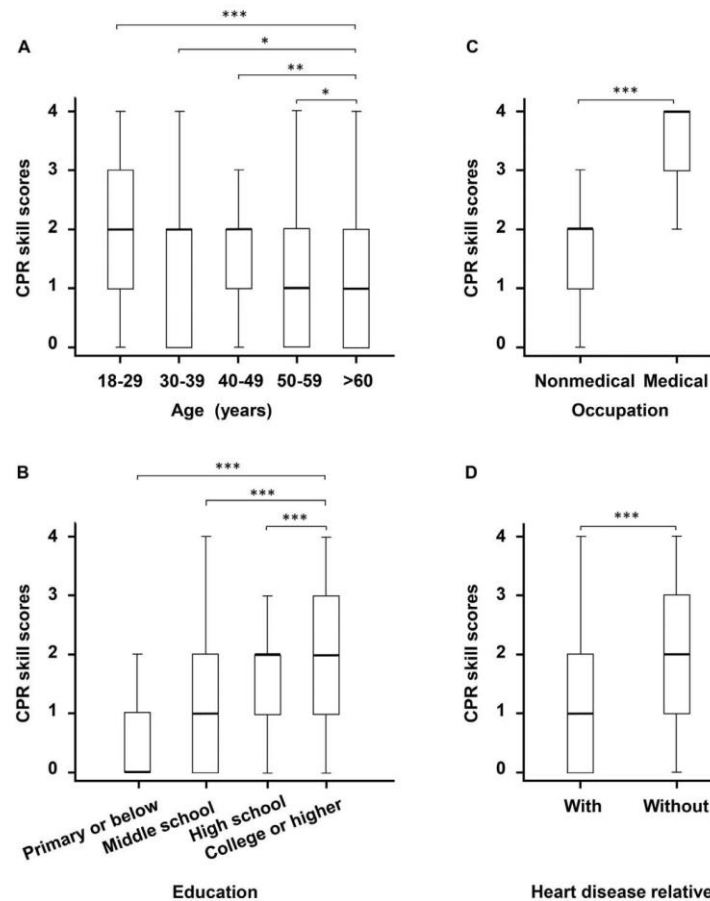


Figure 4 Effect on CPR skills by different factors. (A) Age; (B) education; (C) occupation; (D) having relative with heart disease. horizontal line within box, median; box, lower and upper quartiles; capped vertical lines, 95% confidence. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. CPR, cardiopulmonary resuscitation.



might be the main barriers to CPR performance by a layperson.^{13 26 27}

The current survey revealed a general lack of knowledge about CPR, as only 5.3% of respondents correctly answered four questions. Such deficiencies are common not only in China, where the training rate is less than 1%,²⁸ but also in other countries.^{29–31} In addition, factors influencing CPR knowledge awareness include age, profession and education level in our study. Those who are younger, pursue healthcare professions, receive higher education tend to access more healthcare resources, and therefore are able to process more CPR knowledge.

Research indicates that medical students who had finished essential theoretical courses and training programmes should have grasped all of the CPR knowledge, but the truth is that they did not achieve expected outcomes. Needless to say, non-medical professionals have little chance to attend professional training courses.³² Given the lack of CPR knowledge among the general public, mandatory intervention may ameliorate this problem. After a 5-year intervention in Korea, the percentage of respondents who received CPR education increased from 36.2% to 55.1%, and scores on CPR performance increased from 1.6% to 11.7%.³³ In a matched-pair study among untrained Nigerian students, the question about the recommended rate of chest compressions was answered correctly by 10.5% of the participants preintervention and 43.8% postintervention. The mean knowledge score increased from 1.9 to 11.4.³⁴

Therefore, public health campaigns appear to aid in disseminating knowledge and skills to the public, and such campaigns are urgently needed in countries where awareness of CPR is lacking. The government can also promote CPR on social media and television, where people consume such information most frequently according to our study.

Despite its contributions to our knowledge regarding the current situation of CPR among people whose relatives have heart disease, the study has some limitations. The nature of cross-sectional studies is limited that we cannot make any causal inferences and determinations of time course. And there may have been unmeasured confounding factors. In addition, some respondents had been trained CPR years ago, hence it was liable for recall difficulties.

CONCLUSION

Although the attitude towards learning CPR is very positive, only a small minority in our survey have had the proper training or knowledge. Also troubling, one-third of the respondents never heard of CPR, and people with close family members with heart disease who could potentially benefit the most from CPR were actually less likely to possess the necessary skills. Therefore, there is an urgent need to boost awareness and training in CPR in South China, especially among people with family members with heart disease.

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**PENGARUH PELATIHAN RESUSITASI JANTUNG PARU (RJP) TERHADAP
TINGKAT PENGETAHUAN PADA SISWA KELAS X DI SMA N 1
KARANGANOM KLATEN**

Alga Febriana H¹, Yuniar Ika Fajarini², Akbar Amin Abdullah³
Prodi S1 Keperawatan STIKES Duta Gama Klaten

ABSTRAK

Latar Belakang: Henti jantung dapat terjadi dimana saja dan kapan saja. Pertolongan pertama pada korban henti jantung adalah melakukan resusitasi jantung paru. Resusitasi jantung paru tidak hanya dilakukan oleh tenaga medis atau paramedis, tetapi masyarakat yang sudah terlatih mampu memberikan pertolongan sampai tenaga medis datang ke lokasi korban henti jantung.

Tujuan: Untuk mengetahui pengaruh pelatihan resusitasi jantung paru terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karanganom Klaten.

Metode Penelitian: Penelitian ini merupakan penelitian *quasy-eksperiment design* dengan menggunakan desain *one group pretest-posttest*. Sampel dalam penelitian ini adalah siswa kelas X SMA N 1 Karanganom Klaten yang berjumlah 24 siswa. Analisis data diuji menggunakan *Uji Wilcoxon*.

Hasil: Hasil uji statistik sebelum dan sesudah menunjukkan bahwa pelatihan resusitasi jantung paru sangat mempengaruhi tingkat pengetahuan siswa tentang penanganan pertama korban henti jantung, dengan nilai pengetahuan siswa sebelum diberikan pelatihan adalah dalam kategori baik sebanyak 2 responden setelah diberikan pelatihan pengetahuan siswa terjadi peningkatan sebanyak 23 berpengetahuan dalam kategori baik.

Kesimpulan: Terdapat pengaruh pelatihan resusitasi jantung paru terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karanganom Klaten $p=0,000(p<0,05)$, sehingga penelitian ini dapat menambah wawasan responden dalam menangani korban henti jantung.

Kata kunci: pelatihan, siswa, resusitasi jantung paru

¹Mahasiswa

²Pembimbing I

³Pembimbing II

ABSTRACT

Background: Cardiac arrest can occurred whenever and wherever. The first aid to patient of cardiac arrest is cardiopulmonary resuscitation. Cardiopulmonary resuscitation is not necessarily done by paramedic, but it can be also by trained non-paramedic that can give help until the paramedic arrives in location patient of cardiac arrest.

Objective: The objective of this study is to know the effect of cardiopulmonary resuscitation training on the level of knowledge in class X students at SMA N 1 Karanganom Klaten.

Research Method: This research is a quasy-eksperiment design by using one group pretest-posttest design. The samples of this research were 24 students of the tenth grade in senior high school 1 Karanganom Klaten. The data were analyzed by using Uji Wilcoxon.

Result: Statistical test result before and after showed that cardiopulmonary resuscitation training greatly affects the level of students knowledge about the first aid to patient of cardiac arrest, with the value of student knowledge before being given training s in good category as many as 2 respondents after being given training student knowledge there was an increase knowledge in good category as much 23 respondents.

Conclusion: There is an influence of cardiopulmonary resuscitation training on the level of knowledge in class X students at SMA N 1 Karanganom Klaten $p=0,000(p<0,05)$, with the result this research is expected can be add the perception of respondents in dealing with victims of cardiac arrest.

PENDAHULUAN

Kegawatdaruratan secara umum adalah suatu keadaan seseorang yang berada pada suatu kondisi yang mengancam hidupnya dan memerlukan pertolongan pertama. Pertolongan pertama ini berguna untuk menghindari kecacatan dan kematian saat seseorang berada pada kondisi kegawatdaruratan (Nursana, 2013).

Tim medis dan petugas kesehatan mempunyai tanggung jawab masalah kegawatdaruratan karena dapat terjadi dimana saja dan kapan saja. Kondisi kegawatdaruratan dapat terjadi pada daerah yang jauh dari keberadaan petugas kesehatan. Sehingga peran serta masyarakat untuk membantu korban dalam keadaan kegawatdaruratan menjadi sangat penting sebelum ditangani oleh petugas kesehatan (Sudiharto, 2011).

Salah satu keadaan kegawatdaruratan diantaranya adalah serangan jantung. *World Health Organization* (WHO) menyebutkan bahwa serangan jantung masih menjadi pembunuh nomor satu di negara maju maupun negara berkembang. Serangan jantung merupakan kondisi kegawatdaruratan yang mengakibatkan terjadinya henti jantung (Junaidi, 2011).

Kasus henti jantung di Indonesia sendiri belum diketahui data yang jelas mengenai jumlah pravelensi kejadian henti jantung dikehidupan sehari-hari atau di

luar rumah sakit, namun diperkirakan sekitar 10.000 warga per tahun atau kurang lebih 30 orang per hari mengalami henti jantung. Kejadian terbanyak dialami oleh penderita jantung koroner. Kematian yang disebabkan oleh penyakit jantung koroner dan stroke sehingga mengalami henti jantung diperkirakan akan terus meningkat mencapai 23,3 juta kematian pada tahun 2030 (Depkes, 2014).

Kejadian henti jantung di Jawa Tengah belum diketahui data pastinya, namun angka kejadian seseorang yang terkena penyakit jantung koroner berdasarkan diagnosis dokter sebesar 120.447 kasus. Berdasarkan diagnosis dan gejala, estimasi jumlah penderita penyakit jantung koroner sebesar 337.252 kasus (Depkes, 2014).

Pertolongan pertama yang tepat dalam menangani kasus henti jantung atau *cardiac arrest* adalah *Basic Life Support* yang lebih dikenal dengan Bantuan Hidup Dasar (BHD). Salah satu intervensi yang dilakukan dalam *Basic Life Support* adalah *Cardio Pulmonary Resuscitation* (CPR) atau biasa disebut Resusitasi Jantung Paru (RJP). Resusitasi Jantung Paru bertujuan untuk mengembalikan sirkulasi spontan dan mempertahankan fungsi vital organ pada korban henti jantung dan henti nafas dengan melakukan pemberian kompresi dada dan bantuan nafas (Hardisman,

2014). Salah satu lapisan masyarakat yang dapat diberikan pendidikan kesehatan dalam upaya pemberian pertolongan pertama adalah remaja. Remaja adalah salah satu bagian dari masyarakat awam berjumlah sekitar 1,1 miliar penduduk dunia (WHO, 2010). Jumlah penduduk Indonesia pada tahun 2010 adalah 237,6 juta jiwa. Jumlah prosentase remaja Indonesia adalah sekitar 26,67% dari jumlah semua penduduk Indonesia atau 63,4 juta jiwa adalah remaja (BKKBN, 2014). Menurut Meissner (2012) menyatakan bahwa anak berusia 13 sampai 14 tahun di Jerman telah mampu melakukan tindakan RJP dengan baik, sama baiknya yang dilakukan orang dewasa. Remaja di Indonesia yang tergolong siswa setingkat sekolah menengah atas (SMA) alangkah lebih baiknya dapat melakukan tindakan RJP dengan baik dan benar. Pemberian pelatihan RJP pada siswa SMA dapat menambah wawasan dan pengetahuan para siswa. Pemberian pelatihan RJP merupakan hal yang sangat penting dan bermanfaat bagi peningkatan jumlah orang yang terlatih dalam penanganan pertolongan pertama BHD sehingga dapat menjadi *bystander* di lingkungannya masing-masing. Semua lapisan masyarakat seharusnya diajarkan tentang bantuan hidup dasar. Jumlah siswa SMA yang mengetahui tentang bantuan hidup dasar

hanya siswa yang mempunyai latar belakang pernah mengikuti ekstrakurikuler Palang Merah Remaja (PMR) sedangkan tidak semua siswa di SMA mengikuti ekstrakurikuler tersebut (Mulyadi, 2016).

Shinta (2017), menyatakan bahwa di SMA Negeri 9 Binsus Manado tentang pengaruh simulasi tindakan resusitasi jantung paru terhadap tingkat motivasi siswa menolong korban henti jantung menyebutkan bahwa ada pengaruh pemberian simulasi tindakan resusitasi jantung paru terhadap tingkat motivasi siswa menolong korban henti jantung ($p\text{-value} = 0,00$).

Berdasarkan hasil studi pendahuluan yang dilakukan di SMA N 1 Karangnom Klaten mengenai pengetahuan RJP didapatkan hasil bahwa 4 siswa diketahui belum mengerti tentang RJP dan belum pernah dilakukan pelatihan RJP. Berdasarkan latar belakang diatas, peneliti tertarik untuk melakukan penelitian dengan judul “Pengaruh Pelatihan Resusitasi Jantung Paru (RJP) Terhadap Tingkat Pengetahuan Siswa kelas X di SMA N 1 Karangnom.”

METODE PENELITIAN

Jenis penelitian ini adalah *quasy eksperiment* dengan desain penelitian *one grup pretest posstest*. Populasinya adalah semua siswa kelas X di SMA N 1 Karangnom Klaten yang berjumlah 394 siswa. Sampel penelitian sebanyak 24

responden menggunakan kuesioner tertutup.

HASIL DAN PEMBAHASAN

HASIL PENELITIAN

1. Karakteristik Responden (umur)

Tabel 4.1 Karakteristik responden berdasarkan umur (n:24)

No	Umur	Frekuensi	Persentase (%)
1	14 tahun	2	8,3%
2	15 tahun	16	66,7 %
3	16 tahun	6	25%
	Total	24	100%

Sumber : Data primer 2018

Berdasarkan tabel 4.1 diketahui bahwa responden yang paling banyak berumur 15 tahun sebanyak 16 responden (66,7%), sedangkan yang paling sedikit responden berumur 14 tahun sebanyak 2 responden (8,3%).

2. Karakteristik Responden (jenis kelamin)

Tabel 4.2 Karakteristik responden berdasarkan jenis kelamin (n:24)

No	Jenis Kelamin	Frekuensi	Persentase (%)
1	Laki-laki	18	75%
2	Perempuan	6	25%
	Total	24	100%

Sumber : Data primer 2018

Berdasarkan tabel 4.2 diketahui bahwa responden yang paling banyak berjenis kelamin laki-laki sebanyak 18 responden (75%), sedangkan yang berjenis kelamin perempuan sebanyak 6 responden (25%).

3. Pengetahuan Sebelum dilakukan Pelatihan

Tabel 4.3 Karakteristik responden berdasarkan pengetahuan sebelum dilakukan pelatihan (n:24)

No	Pengetahuan	Frekuensi	Persentase (%)
1	Baik	2	8,3%
2	Cukup	16	66,7%

3	Kurang	6	25%
	Total	24	100%

Sumber : Data primer 2018

Berdasarkan tabel 4.3 diketahui bahwa paling banyak responden memiliki pengetahuan cukup sebanyak 16 responden (66,7%), sedangkan yang paling sedikit responden memiliki pengetahuan baik sebanyak 2 responden (8,3%).

4. Pengetahuan Sesudah dilakukan Pelatihan

Tabel 4.3 Karakteristik responden berdasarkan pengetahuan sesudah dilakukan pelatihan (n:24)

No	Pengetahuan	Frekuensi	Persentase (%)
1	Baik	23	95,8%
2	Cukup	1	4,2%
3	Kurang	0	0%
	Total	24	100%

Sumber : Data primer 2018

Berdasarkan tabel 4.4 diketahui bahwa paling banyak responden memiliki pengetahuan baik sebanyak 23 responden (95,8%), sedangkan responden yang memiliki pengetahuan cukup sebanyak 1 responden (4,2%). Responden dengan pengetahuan kurang sudah tidak ada (0%).

5. Analisis Bivariate

a. Uji Wilcoxon

Table 4.5 Pengaruh pelatihan RJP terhadap tingkat pengetahuan pada siswa kelas X di SMA N I Karangom Klaten

	N	P-value
Pretest	24	
Posttest	24	0,000

Berdasarkan uji statistik dengan Wilcoxon didapatkan hasil bahwa ada

pengaruh pelatihan RJP terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karangnom Klaten dengan nilai p value = 0,000 ($p < 0,05$).

PEMBAHASAN

Hasil penelitian mengenai pengetahuan siswa tentang RJP sebelum diberi pelatihan sebagian besar adalah cukup sebanyak 16 responden (66,7%), siswa yang berpengetahuan kurang sebanyak 6 responden (25%), sedangkan siswa dengan pengetahuan baik hanya 2 responden (8,3%). Keadaan ini disebabkan karena sedikitnya responden yang mendapatkan informasi tentang RJP, karena dengan banyaknya informasi yang diperoleh maka seseorang akan memiliki pengetahuan. Kurangnya informasi yang dimiliki responden disebabkan kurangnya pemberian pendidikan kesehatan yang mencakup pelatihan.

Menurut Notoatmodjo (2003) dalam buku Wawan dkk (2011) pengetahuan merupakan hasil tahu dan ini terjadi setelah orang mengadakan pengindraan terhadap suatu objek tertentu. Pengindraan suatu objek terjadi melalui panca indra manusia yakni penglihatan, pendengaran, penciuman, rasa dan raba dengan sendiri. Pada waktu pengindraan sampai menghasilkan pengetahuan tersebut sangat dipengaruhi oleh intensitas perhatian persepsi terhadap obyek.

Pengetahuan cukup yang dimiliki siswa tentang RJP menunjukkan bahwa pentingnya pemberian pelatihan RJP kepada siswa kelas X di SMA N 1 Karangnom Klaten sehingga pengetahuan siswa dapat diperoleh hasil yang optimal. Pelatihan memiliki peran yang besar dalam memperbaiki pengetahuan responden. Pada penelitian ini terlihat bahwa pengetahuan responden dalam kategori baik terjadi peningkatan sebanyak 23 responden (95,8%), pengetahuan dalam kategori cukup sebanyak 1 orang (4,2%), sedangkan pengetahuan responden dalam kategori kurang sudah tidak ada (0%). Hal tersebut menunjukkan bahwa pelatihan memiliki peran yang sangat besar dalam meningkatkan pengetahuan dan bertujuan untuk meningkatkan pelayanan kesehatan. Peran pelatihan dalam pelayanan kesehatan dimaksudkan untuk melakukan perbaikan kesehatan masyarakat (Yuliantari dkk, 2014).

Analisis *bivariate* menggunakan uji *Wilcoxon* diperoleh hasil yang signifikan ($p=0,000$) yang berarti nilai $p < 0,05$. Hipotesis ini dapat diartikan bahwa H_0 ditolak dan H_a diterima yaitu ada perbedaan antara sebelum dan sesudah dilakukan pelatihan RJP terhadap tingkat pengetahuan pada siswa kelas X di SMA N 1 Karangnom Klaten.

Hasil menunjukkan terjadi peningkatan pengetahuan siswa dapat

dilihat sebelum pelatihan 8,3 % pengetahuan baik menjadi 95,8% dan penurunan pengetahuan yang cukup dari 66,7% menjadi 4,2%. Pengetahuan dalam kategori kurang dari 25% menjadi 0%.

Peningkatan pengetahuan pada siswa kelas X di SMA N 1 Karanganom Klaten disebabkan karena ada informasi yang memberikan pengetahuan tentang penting melakukan resusitasi jantung paru saat menemukan seseorang yang sedang mengalami henti jantung dan henti nafas. Pelatihan diberikan dengan metode ceramah dan tanya jawab serta memberikan materi tentang Resusitasi Jantung Paru (RJP). Pemberian teori dan praktik dimaksudkan dapat memberikan pengetahuan, informasi dan pengalaman yang lebih banyak. Tingkat pengetahuan menunjukkan adanya perubahan sesudah diberikan pelatihan. Hasil ini sesuai dengan teori Supriyadi (2013) tentang cara seorang siswa dalam memperoleh pembelajaran ada 3 yaitu: visual, audio, dan kinestik. Pelatihan RJP adalah suatu pembelajaran dalam metode praktik, jadi seorang siswa mampu melihat saat pelatih mempraktikkan, mampu mendengarkan materi saat pelatih memberikan materi dan mampu melakukan pelatihan RJP saat mereka diberikan pelatihan RJP.

KESIMPULAN

Berdasarkan hasil penelitian Pengaruh Pelatihan Resusitasi Jantung

Paru (RJP) terhadap Tingkat Pengetahuan Pada Siswa Kelas X di SMA N 1 Karanganom Klaten didapatkan kesimpulan sebagai berikut:

1. Pengetahuan siswa kelas X mengenai RJP, sebelum dilakukan pelatihan di SMA N 1 Karanganom Klaten dengan pengetahuan dalam kategori baik hanya 2 responden (8,3%).
2. Pengetahuan siswa kelas X mengenai RJP, setelah dilakukan pelatihan di SMA N 1 Karanganom Klaten dengan pengetahuan dalam kategori baik sebanyak 23 responden (95,8%).
3. Terdapat perbedaan pengetahuan siswa kelas X di SMA N 1 Karanganom Klaten sebelum diberikan pelatihan dan setelah dilakukan pelatihan.
4. Terdapat Pengaruh Pelatihan Resusitasi Jantung Paru (RJP) Terhadap Tingkat Pengetahuan Siswa Kelas X di SMA N 1 Karanganom Klaten ditandai dengan nilai $p = 0,000$ ($p < 0,05$).

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ORIGINAL RESEARCH

EFFECT OF CARDIAC ARREST MANAGEMENT TRAINING ON THE ABILITY OF ORDINARY PEOPLE TO PERFORM HIGH-QUALITY CARDIO PULMONARY RESUSCITATION

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Abstract

Background: The rate of cardiac arrest outside hospitals remains high in Indonesia. Performing Cardio Pulmonary Resuscitation (CPR) is advised as an emergency procedure to save a person's life. However, lack of ordinary people is able to do CPR. Therefore, cardiac arrest management training is considered important to form a bystander in the community.

Objective: This study aimed to determine if there is an effect of cardiac arrest management training on the ability of ordinary people to perform high-quality CPR.

Methods: This study used one-group pretest-posttest design method with a total sample of 35 participants. Observation sheet based on American Heart Association was used to measure the ability to perform CPR. Paired-t test was used for data analysis.

Results: There was a significant effect of the cardiac arrest management training on the ability to perform high-quality CPR ($p < .001$), with an increase of the mean value from 19.62 (SD=5.50) before intervention to 37.91 (SD=1.29) after intervention.

Conclusion: The cardiac arrest management training at the community level is considered effective in increasing the ability to perform high-quality CPR. The findings of this study can be used as input for community nurses to provide pre-hospital management training specifically on cardiac emergency management training continually for ordinary people in order to help improve good prognosis and reduce mortality risk of out-of-hospital cardiac arrest.

KEYWORDS

cardiac arrest; emergency management training; ability; ordinary people; cardio pulmonary resuscitation

BACKGROUND

Cardiac events are emergency situations that occur in many hospitals and outside the hospital or called Out-of-Hospital Cardiac Arrest (OHCA) (Jainurakhma et al., 2017; Muthmainnah, 2019; Suharsono & Ningsih, 2012). Cardiac arrest is a sudden loss of heart function to supply oxygen to the brain which ultimately causes cell death and heart suddenly stops working (Muthmainnah, 2019). This condition often results in anxiety for families and helpers, especially if it occurs outside the hospital with incomplete pre-hospital management facilities and lack of helpers who are able to perform high-quality Cardio Pulmonary Resuscitation (CPR) (Jainurakhma et al., 2020). Data from the American Heart Association (AHA) show that there are 2 million deaths caused by cardiac arrest, with incidence rate of 80% OHCA occurs at home and 20% occurs in public places (Muniarti, 2019).

In Southeast Asian region, the death rate due to cardiac arrest is in the third place of the most common causes of death. In the United States, emergency services assess that each year there are more than 420,000

cases, and in Europe, there are 300,000 cases (Yunanto et al., 2017). In Indonesia, Ministry of Health of the Republic of Indonesia (2007) reported that deaths caused by heart disease resulted in 4.6% of 4,552 deaths in three years. The prevalence in the East Java shows that 1.3% or around 375,127 people suffered from heart disease (World Health Organization, 2011). In Malang, the incidence and death rates in cases of sudden cardiac arrest outside the hospital are estimated to be quite high. Research has been carried out for 6 months in 2016, which showed that there were 57 cases of cardiac arrest, with 44 cases occurred at home and passed away in the way to go to hospitals due to inability of the closest persons to help (Pratama, 2017). In Karangsuko village, in early 2019, there was one death of cardiac arrest due to the residents were late in recognizing symptoms and late in providing CPR assistance before being taken to the hospital.

The main cause of the low survival of the victims of OHCA is due to late administration of CPR (Yunanto et al., 2017), and lack of rescue teams who understand pre-hospital management, especially in the management of OHCA (Jainurakhma et al., 2020). Resuscitation is an

attempt to restore the function of the respiratory system, blood circulation and nerves. CPR performed in the first few minutes when a cardiac arrest occurs will provide a two to three-fold chance of survival (American Heart Association, 2015; Jainurakhma et al., 2017). Our preliminary survey results in Karangsuko Pagelaran Village showed that Karangsuko villagers had never received training on CPR. It is therefore, CPR training is needed. According to Mathis and Jackson (2010), training will provide specific knowledge and skills. The ability of pulmonary resuscitation is very important possessed by all people to increase the chances of life in cardiac arrest victims (Jainurakhma et al., 2020; Pratama, 2017; Putri et al., 2019). The purpose of this study was to analyze the effect of training on ordinary people's ability to perform quality CPR in Karangsuko Village, Pagelaran District, Malang Regency, Indonesia.

METHODS

Study Design

This study uses a pre-experimental research design with one-group pretest-posttest design. The design was chosen to get initial information on effective training for ordinary people to manage the victims of cardiac arrest within the scope of pre-hospital management.

Participants

Thirty-five participants were selected in the study using total sampling in Karangsuko village. The inclusion criteria of the participants were village health cadres and physically and mentally healthy. The exclusion criterion was those who had physical disability with their hands and hearing loss.

Instrument

The standard operating procedure for Basic Life Support (BLS) and Advance Cardiac Life Support (ACLS) and observation sheet were used, adopted from American Heart Association (2015). The instruments were validated by two experts and met the requirements to measure the ability of respondents in emergency management in performing high-quality CPR. The observation sheet was based on each step in the standard operating procedure, which consisted of 20 observation items. Three scores were used: score 2 if the participant did the action correctly, score 1 if the participant did the action but in incorrect way, score 0 if the participant did not do the action.

Intervention

In the emergency cardiac emergency training, we divided all participants into nine groups, which one group consisted of four respondents and one observer. The training was conducted in Sumbermaron meeting hall of Karangsuko Village. Before intervention, the ability of each respondent is measured in advance (pretest) conducted for thirty minutes. Then at the first meeting in the first week, it was held for sixty minutes, with the provision of material on the introduction of victims of cardiac arrest and simulations on how to provide first-aid with quality cardio pulmonary resuscitation (CPR) based on American Heart Association (2015), and how to evaluate the success of CPR administration. Furthermore, respondents were divided into nine small groups, which a simulation of first aid on OHCA with quality CPR was conducted. There were three stages of the trainings: the first training was conducted in the first week, and each respondent was given an intervention in the form of a scenario for 30 minutes of

simulation, then given the opportunity to practice rescue for victims of cardiac arrest for 30 minutes. The second training was conducted in the second week. Each respondent was given the opportunity to practice first-aid of OHCA for 30 minutes, which initially given a stimulus in the form of reading scenarios for 30 minutes. The third training was conducted in the third week, which all processes were the same in the second training. Posttest was measured after the third training. The intervention was given by qualified trainers with advanced CPR instructor certification, having BLS and ACLS provider license (American Heart Association license), and having experience in providing basic life support training for assessment of patients.

Data Collection

The research process was carried out for six months from September 2019 to February 2020. The research treatment was carried out for three consecutive weeks with repeated treatments. This study was conducted by the researchers assisted by nine observers. The objectives and procedures of data collection were explained to all observers prior to data collection. The criteria of observers were those who attended basic life support training based on American Heart Association.

Data Analysis

In this study, data were normally distributed based on Shapiro Wilk normality test ($p \geq .05$). Paired t-test was used to see the effect of intervention between pretest and posttest.

Ethical Consideration

This study was approved by Ethics Review Committee of Sekolah Tinggi Ilmu Kesehatan Kepanjen, with no.035/S.Ket/KEPK/STIKesKPI/2020. Written permissions were also obtained from Badan Kesatuan Bangsa dan Politik (The National Unity and Politics Agency) of Malang Regency and Head of Karangsuko Village, Pagelaran Sub-District, Malang Regency. Informed consent was signed by the participants as a manifestation of their voluntary involvement in the research. The participants were assured of their confidentiality and anonymity.

RESULTS

Characteristics of Respondents

Table 1 shows the general public who attended cardiac arrest management training, 85.7% had never received training on cardiac arrest and pre-hospital management of victims of OHCA, and 80% of the respondents aged over twenty-five years.

Table 1 Characteristics of Respondents by Age, Gender and Prior Information About Cardiac Arrest Training

Characteristics	Categories	F	%
Gender	Male	14	40.0%
	Female	21	60.0%
	Total	35	100.0%
Prior Information About Cardiac Arrest	Never	30	85.7%
	Ever	5	14.3%
	Total	35	100.0%
Age (years)	21-25 years	7	20.0%
	26-30 years	9	25.7%
	31-35 years	12	34.3%
	36-40 years	4	11.4%
	>40 years	3	8.6%
	Total	35	100.0%

The Ability of the Community to Conduct Quality CPR Before and After given Cardiac Arrest Management Training

Table 2 shows that there was an increase in the average of the ability of the participants to conduct high-quality CPR after given the intervention, which can be seen from the mean value of the posttest of 37.91, with a minimum-maximum value of 35-40, and a standard deviation of 1.29. Paired t-test result shows a significant difference of the average value of the ability of the participants to conduct CPR before and after given intervention with mean difference of 18.29, and a standard deviation of 5.39 ($p < .001$) (Table 3).

Table 2 The Ability of the Community to Conduct CPR Before and After given Cardiac Arrest Management Training

Group	F	Mean	SD	Min-Max
Pretest	35	19.62	5.50	10-32
Posttest	35	37.91	1.29	35-40

Table 3 Difference in the Ability of the Community to Conduct CPR Before and After given Cardiac Arrest Management Training

	Mean Difference	SD	CI 95%		p-value
			Lower	Upper	
Pretest-Posttest	18.29	5.39	20.14	16.43	<.001

DISCUSSION

In this study, most respondents aged less than 36 years as much as 80%. This is very influential on the ability to receive information about pre-hospital management of cardiac arrest, which is in accordance with [Fadiah et al. \(2019\)](#) stated that someone who is in the early adult category or younger is very capable of receiving or learn new things and better ability to remember. In addition, according to [Putri et al. \(2019\)](#), the implementation of a person's skills is based on their prior knowledge either in the form of information or training. Our study showed that 85.7% of the participants had never been exposed to information about the management of CPR, but after given training, their skills increased with the average ability of 37.91. This shows that the training on pre-hospital management of cardiac arrest provided to ordinary people effectively and can be used as a reference for improving the quality of CPR delivery skills. Good knowledge from the helper about the introduction of victims and how to manage pre-hospital management of cardiac arrest patients, greatly affect the quality of helpers in the alacrity of relief and performance when performing quality CPR compression ([Berger et al., 2019](#); [Putri et al., 2019](#); [Tanna et al., 2019](#)).

The training in this study aimed in increasing the ability and understanding of the participants to recognize early signs and symptoms of cardiac arrest, ability to seek help, high-quality CPR compression and accuracy of the placement of the hands, the speed of compression, and assessment of the success of the first aid. According to [Unoki et al. \(2019\)](#), [Suharsono and Ningsih \(2012\)](#), and [American Heart Association \(2015\)](#), the recognition of early signs of cardiac arrest is very important to be realized by every individual because cardiac arrest is a life threatening event. This is in line with [Yasin et al. \(2017\)](#) and [Metrikayanto et al. \(2018\)](#) stated that the late introduction of victims of cardiac arrest is the cause of the failure of relief efforts for victims. [Setiaka \(2018\)](#) and [Suratmi and Juanita](#) reported that during resuscitation of cardiac arrest cases, the quality of helper

compression is one of the successes of high-quality CPR, with the right speed of 100-120x / minute, not too fast or slow to be able to improve a good prognosis.

Additionally, according to [Suharsono and Fikriana \(2016\)](#), the correct placement of hand positions during cardiac pulmonary resuscitation is also very important. The respondent's lack of confidence in providing the mouth blowing mannequins has also contributed to the ability to provide effective ventilation. This is also in line with guidelines issued by the [American Heart Association \(2015\)](#), recommended for ordinary people when meeting someone with cardiac arrest is to immediately carry out hands-only CPR. This technique has been found to be an effective interventions in the management of cardiac arrest and overcome many of the barriers to bystander CPR ([Witt, 2019](#)). Hands-only CPR is an act of cardiac pulmonary resuscitation by only providing compressive measures without providing breathing assistance or ventilation ([American Heart Association, 2015](#); [Liu et al., 2018](#)). [Widyarani \(2018\)](#) said that the ability of respondents must often be sharpened, if the respondents are less exposed to cases of cardiac arrest, they will quickly forget the procedure of CPR action. According to [Muniarti \(2019\)](#), the simulation and observational method is very effective to improve skills. The simulation process also makes it easy to build confidence in carrying out an action ([Sahu & Lata, 2010](#); [Yasin et al., 2017](#)), and to learn the technical procedures of action in detail ([Sahu & Lata, 2010](#)).

This study provided the knowledge that the training related to the ability to provide the right blow, proper placement of hand positions, the pressure needed to produce maximum depth, the adequate speed and the provision of effective breathing assistance are effective to increase the ability of ordinary people to perform high-quality CPR. The use of simulation and observational methods is considered to be a good method during the training. Overall, the ability score of quality CPR to help cardiac arrest victims had been improved after given the interventions based on [American Heart Association \(2015\)](#) guidelines.

The limitations of the study include the inability of the researchers to observe or measure the decline in the ability of the participants after given training, which can be an input for further research. Also, the use of the pre-experimental design without a control group might limit the results of this study. True experiment or quasy experiment is needed for further research.

CONCLUSION

The results showed that there is a cardiac arrest emergency training influence on the society's ability to perform high-quality CPR. The findings are expected to be the basis of evidence of practice to help cardiac arrest victims. This study can be used for community nurses to understand the importance of CPR given to the ordinary people in fast, precise and safe way. It is therefore necessary to pay attention to the continuity of this training in an ongoing basis. The more often the public is given knowledge and training on appropriate management of cardiac arrest victims, the more the cardiac arrest events will be handled. The trainings of the management of cardiac arrest victims in the ordinary people in terms of recognizing cardiac arrest victims, finding and communicating the health conditions of the victims, and

performing high-quality CPR are very important to decrease the death rate of people with cardiac arrest.

Declaration of Conflicting Interest
None declared.

Authorship Contribution

All authors have contributed equally from conception to the finalization of this study. Most of the significant intellectual content of this publishable copy of the article was done by the corresponding author.

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Efektifitas Simulasi Resusitasi Jantung Paru Terhadap Kemampuan Penatalaksanaan Resusitasi Jantung Paru Anggota Brimob

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Abstrak

Pendahuluan: Kurangnya kemampuan masyarakat dalam melakukan pertolongan pertama pada korban yang mengalami henti jantung disebabkan karena masih kurang pengetahuan yang dimiliki masyarakat khususnya tentang cara melakukan resusitasi jantung paru sehingga angka kematian akibat henti jantung meningkat.

Tujuan: mengetahui tingkat efektifitas simulasi resusitasi jantung paru terhadap kemampuan penatalaksanaan resusitasi jantung paru Anggota Brimob

Metode: desain penelitian adalah *pra eksperimental* dengan pendekatan *one-group pre test post test*. Responden. Populasi semua anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda Jatim sebanyak 100 orang, dengan teknik *accidental sampling* didapatkan sampel sebanyak 25 responden.

Hasil: penelitian menunjukan seluruh Anggota Brimob memiliki kemampuan dengan kategori kurang terampil dalam melakukan resusitasi jantung paru sebelum dilakukan simulasi yaitu sebanyak 25 (100%) responden, Hampir seluruh Anggota Brimob memiliki kemampuan dengan kategori terampil dalam melakukan resusitasi jantung paru setelah dilakukan simulasi yaitu sebanyak 22 (88,0%). Hasil analisis data menunjukan bahwa tingkat signifikansi nilai $p = 0,000$ sehingga H_1 diterima.

Kesimpulan: ada pengaruh simulasi Resusitasi Jantung Paru terhadap kemampuan penatalaksanaan Resusitasi Jantung Paru (RJP) Anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda Jatim. Ketrampilan seseorang perlu diasah agar semakin terampil dalam melakukan bantuan hidup dasar bagi Anggota Brimob. Dengan diberikannya simulasi anggota brimob bukan hanya mendengar tetapi juga dapat melihat secara langsung tindakan yang dapat dilakukan ketika menemukan korban dengan henti jantung.

Kata Kunci: Simulasi, Kemampuan, Resusitasi Jantung Paru

Abstract

Introduction: Lack of community's ability to do first aid to victims who experience cardiac arrest is due to the short of knowledge that is owned by the community, especially about how to perform lung heart resuscitation so that the death rate due to cardiac arrest increases.

Objective: The aim of the study was to determine the effectiveness of the simulation of pulmonary resuscitation on the ability to manage pulmonary resuscitation in Brigade Mobile Members.

Method: The study design was pre-experimental with a one-group pre post test approach. Respondents were taken by accidental sampling technique. The population of all members of Brigade Mobile in Company 1 Battalion C Pioneer of Brigade Mobile Unit of Regional Police East Java as many as 100 people, a sample of 25 respondents.

Result: The results showed that all Brigade Mobile Members had the ability with the category of less skilled in performing pulmonary resuscitation before simulating 25 (100%) Respondents, almost all Brigade Mobile members had the ability with skilled categories in performing cardiac pulmonary resuscitation after simulation, which was 22 (88,0%). The results of data analysis showed that the significance level of p -value = 0,000.

Conclusion: there was an effect on the simulation of Pulmonary Resuscitation on the ability to manage Pulmonary Resuscitation (RJP) of Brigade Mobile Members in Company 1 Battalion C Pioneer of Brigade Mobile Unit of East Java Regional Police. The more often simulations are carried out, the more skilled is the ability of Brigade Mobile members to carry out basic life support, because by providing simulations Brigade Mobile members not only can hear but also see firsthand the actions that can be taken when finding victims with cardiac arrest.

Keywords: simulation, ability, pulmonary resuscitation

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Pendahuluan

Salah satu kondisi kegawatdaruratan yang dapat mengancam jiwa dan membutuhkan penanganan segera adalah *cardiac arrest* atau henti jantung.¹ Kondisi kegawatdaruratan henti jantung dapat terjadi dimana saja dan kapan saja. Salah satu tugas petugas kesehatan adalah menangani masalah tersebut. Walaupun begitu tidak menutup kemungkinan kondisi kegawatdaruratan tersebut dapat terjadi di luar rumah sakit atau di daerah yang sulit dijangkau oleh petugas kesehatan sehingga peran serta petugas keamanan seperti satuan brimob menjadi hal penting yang dibutuhkan dalam kondisi tersebut karena brimob merupakan petugas keamanan yang selalu berada di masyarakat ketika terjadi suatu peristiwa yang berbahaya ataupun ketika terjadi suatu bencana sehingga brimob dapat membantu korban yang mengalami henti jantung sebelum ditemukan oleh petugas kesehatan, oleh sebab itu satuan brimob harus memiliki pengetahuan dan kemampuan yang cukup untuk menangani korban yang mengalami henti jantung.²

Sebagian besar kejadian henti jantung terjadi di luar rumah sakit. *Out of Hospital Cardiac Arrest* (OHCA) merupakan kejadian henti jantung mekanis yang ditandai dengan tidak adanya tandatanda sirkulasi dan terjadi di luar rumah sakit. Salah satu penyebab utama kematian dikalangan orang dewasa di Amerika Serikat adalah OHCA dengan jumlah kejadian mencapai sekitar 300.000 setiap tahun dan sekitar 92% orang meninggal karena OHCA.³ Di Indonesia sendiri belum didapatkan data yang jelas mengenai jumlah prevalensi kejadian henti jantung di kehidupan sehari-hari atau di luar rumah sakit, namun diperkirakan sekitar 10.000 warga per tahun yang berarti 30 orang per hari mengalami henti jantung. Kejadian terbanyak dialami oleh penderita jantung koroner. Kematian yang disebabkan oleh penyakit jantung pembuluh darah, terutama penyakit jantung koroner dan stroke diperkirakan akan terus meningkat mencapai 23,3 juta kematian pada tahun 2030(3) Sedangkan kejadian henti jantung di Provinsi Jawa Timur sebesar 0,09%.⁴

Kepolisian Negara Republik Indonesia atau yang sering disingkat dengan Polri dalam kaitannya dengan Pemerintahan adalah salah satu fungsi pemerintahan negara di bidang pemeliharaan keamanan dan ketertiban masyarakat, penegakan hukum, perlindungan, pengayoman, dan pelayanan kepada masyarakat, yang bertujuan untuk mewujudkan keamanan dalam negeri yang meliputi terpeliharanya keamanan dan ketertiban masyarakat, tertib dan tegaknya hukum, terselenggaranya perlindungan, pengayoman, dan pelayanan kepada masyarakat, serta terbinanya ketenteraman masyarakat dengan menjunjung tinggi hak azasi manusia.⁵

Berdasarkan Pasal 2 Undang-undang Nomor 2 Tahun 2002 tentang Kepolisian Negara Republik Indonesia (selanjutnya disingkat UU No. 2 Tahun 2002), maka fungsi kepolisian adalah salah satu fungsi pemerintahan negara di bidang pemeliharaan keamanan dan ketertiban masyarakat, penegakan hukum, perlindungan, pengayoman, dan pelayanan kepada masyarakat.⁶

Dalam menjalankan fungsi dan perannya brimob rentan menemui kasus kegawatdaruratan yang memerlukan tindakan bantuan hidup dasar, karena ketika terjadi suatu bencana brimob selalu turut ambil bagian dalam memberikan bantuan, sehingga brimob perlu memiliki kemampuan dalam memberikan bantuan hidup dasar. Minimnya pelatihan dalam hal kesehatan membuat anggota brimob enggan untuk melakukan tindakan bantuan hidup dasar, dan jika ada yang berani melakukan tindakan Resusitasi Jantung Paru (RJP) itu pun tidak sesuai dengan prosedur Resusitasi Jantung Paru (RJP). Oleh sebab itu anggota brimob perlu memiliki pengetahuan dan kemampuan yang baik dalam menangani korban henti jantung sehingga dapat membantu menyelamatkan nyawa korban yang mengalami henti jantung.

Kasus henti jantung dapat terjadi dimanapun, di masyarakat, di luar rumah sakit maupun di dalam rumah sakit. Kemungkinan bertahan hidup pada penderita henti jantung di luar rumah sakit atau pre-

hospital menurun 7-10% tiap menit sejak dimulainya henti jantung.⁷

Pertolongan yang tepat dalam menangani kasus kegawatdaruratan dalam hal ini yaitu cardiac arrest adalah Basic Life Support atau yang dikenal dengan Bantuan Hidup Dasar (BHD). *Cardio Pulmonary Resuscitation* (CPR) atau yang biasa disebut Resusitasi Jantung Paru (RJP) adalah sekumpulan intervensi yang bertujuan untuk mengembalikan dan mempertahankan fungsi vital organ pada korban henti jantung dan henti nafas. Intervensi ini terdiri dari pemberian kompresi dada dan bantuan nafas.⁸ Resusitasi jantung paru (RJP) yang efektif adalah dengan menggunakan kompresi dan dilanjutkan dengan ventilasi.⁹ Komponen penting dalam melakukan RJP adalah kedalaman kompresi, kecepatan kompresi, ventilasi, *return of spontaneous circulation* (ROSC) dan meminimalisas interupsi.¹⁰ Hal ini sesuai dengan penelitian dari fatmawati mengenai pengaruh edukasi Basic Life Support terhadap tingkat pengetahuan mahasiswa Program Studi Ilmu Keperawatan didapatkan hasil bahwa ada pengaruh di antara keduanya.¹¹

Berdasarkan hasil wawancara kepada 8 anggota brimob golongan I tentang tindakan Resusitasi Jantung Paru (RJP), didapatkan hasil bahwa tidak ada satupun brimob yang mengerti dan memahami tentang bantuan hidup dasar khususnya tentang prosedur dari Resusitasi Jantung Paru (RJP). Mereka mengatakan bahwa mereka tidak mengetahui cara untuk memberikan resusitasi jantung paru, merka juga mengatakan bahwa apabila menemui orang dengan henti jantung mereka tidak mampu memberikan bantuan hidup dasar Resusitasi Jantung Paru (RJP) karena mereka tidak mengetahui apa yang harus dilakukan, salah satu tindakan yang dapat mereka lakukan yaitu meminta bantuan kepada petugas kesehatan

Tujuan Penelitian ini adalah untuk mengetahui tingkat Efektifitas simulasi Resusitasi Jantung Paru terhadap kemampuan penatalaksanaan Resusitasi Jantung Paru Anggota Brimob Di Kompi 1 Batalion C Pelopor Satbrimob POLDA Jatim.

Metode

Desain penelitian adalah pra eksperimental dengan pendekatan one-group pre test post test. Populasi semua anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda Jatim sebanyak 100 orang Responden diambil dengan teknik accidental sampling, di dapatkan sampel sebanyak 25 responden. Variabel independen pemberian simulasi Resusitasi Jantung Paru, variabel dependen kemampuan penatalaksanaan Resusitasi Jantung Paru, kemudian dianalisis dengan uji statistik Wilcoxon.

Hasil

Karakteristik Subyek

Tabel 1. Karakteristik responden dalam penelitian ini meliputi usia, pendidikan dan kemampuan resusitasi jantung paru sebelum dan sesudah dilakukan simulasi.

No	Karakteristik	Σn	Σ%
1	Usia (th)		
	<25	7	28
	25-35	12	48
	>35	6	24
2	Pendidikan		
	SMA	21	84
	Sarjana	4	16
3	Kemampuan resusitasi jantung paru sebelum dilakukan simulasi		
	Kurang	25	100
	Cukup	0	0
	Baik	0	0
4	Kemampuan resusitasi jantung paru setelah dilakukan simulasi		
	Kurang	0	0
	Cukup	3	12
	Baik	22	88
Total		25	100

Berdasarkan dari tabel 1 diatas diketahui bahwa dari total 25 responden yang berusia 25-35 tahun yaitu sebanyak 12 responden (48%), berpendidikan SMA yaitu sebanyak 21 responden (84%), memiliki kemampuan dengan kategori kurang dalam melakukan resusitasi jantung paru sebelum dilakukan simulasi yaitu sebanyak 25 (100%)

responden dan sesudah dilakukan simulasi memiliki kemampuan dengan kategori baik yaitu sebanyak 22 (88%) responden.

Tabel 2. Efektivitas simulasi RJP terhadap kemampuan penatalaksanaan RJP

Test Statistics ^b	
	kemampuan_sesudah - kemampuan_sebelum
Z	-4.772 ^a
Asymp. Sig. (2-tailed)	.000

a. Based on negative ranks.
b. Wilcoxon Signed Ranks Test

Berdasarkan hasil uji statistik yang telah dilakukan diketahui bahwa nilai $p = 0,000$ sehingga H_1 diterima yang artinya ada simulasi Resusitasi Jantung Paru (RJP) efektif terhadap kemampuan penatalaksanaan Resusitasi Jantung Paru (RJP) Anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda Jatim.

Pembahasan

Kemampuan Anggota Brimob Melakukan Resusitasi Jantung Paru Sebelum Dilakukan Simulasi

Seluruh Anggota Brimob Di Kompi 1 Batalyon C Pelopor Satbrimob POLDA Jatim memiliki kemampuan dengan kategori kurang dalam melakukan resusitasi jantung paru sebelum dilakukan simulasi yaitu sebanyak 25 (100%) responden dari total 25 responden. Menurut *International Organization for Migration* (IOM) simulasi adalah metode pembelajaran atau pendampingan yang memperagakan sesuatu dalam bentuk tiruan yang mirip dengan keadaan yang sesungguhnya. Metode ini menggunakan gambaran dari suatu situasi yang nyata tanpa harus mengalaminya. Simulasi memberikan latihan dalam situasi tiruan.¹²

Menurut Mais mengatakan, bahwa tingkat kemampuan yang ada pada setiap orang dipengaruhi oleh pengetahuan yang dimiliki yang diterima atau ditangkap melalui pancaindera, semakin banyak pancaindera yang

digunakan, maka semakin banyak dan semakin jelas pula pengertian atau pengetahuan yang diperoleh.¹³ Penelitian yang dilakukan Ikhsan Sodik dengan judul gaya hidup dan penyakit jantung koroner menyatakan bahwa lemak berkontribusi terhadap terjadinya aterosklerosis pada pasien dengan gangguan jantung.¹⁵

Hasil penelitian menunjukan bahwa seluruh responden dalam penelitian ini memiliki kemampuan yang kurang dalam melakukan Resusitasi Jantung Paru sebelum dilakukan simulasi Resusitasi Jantung Paru, yang dimaksud dengan kemampuan kurang dalam melakukan Resusitasi Jantung Paru yaitu responden hanya mengetahui bahwa apabila menemukan korban dengan henti napas dan henti jantung tindakan yang diberikan yaitu resusitasi Resusitasi Jantung Paru sedangkan langkah-langkah dari tindakan Resusitasi Jantung Paru responden tidak mengetahuinya. Kurangnya kemampuan responden dalam melakukan Resusitasi Jantung Paru disebabkan karena responden yang digunakan dalam penelitian ini yaitu responden yang belum pernah mengikuti pelatihan tentang Resusitasi Jantung Paru dan responden tidak memiliki latar belakang dari kesehatan, serta responden hanya mendengarkan informasi tentang resusitasi jantung paru dari media sosial seperti televisi dan internet sehingga pengetahuan responden tentang Resusitasi Jantung Paru masih kurang yang menyebabkan kemampuan responden dalam melakukan Resusitasi Jantung Paru masih kurang.

Kemampuan Anggota Brimob Melakukan Resusitasi Jantung Paru Setelah Dilakukan Simulasi

Hampir seluruh Anggota Brimob Di Kompi 1 Batalyon C Pelopor Satbrimob POLDA Jatim memiliki kemampuan dengan kategori baik dalam melakukan resusitasi jantung paru setelah dilakukan simulasi yaitu sebanyak 22 (88,0%) responden dari total 25 responden. Penelitian ini sejalan dengan teori yang jelaskan bahwa untuk mendorong sebuah pelayanan kesehatan publik yang berkualitas, masyarakat harus memiliki banyak informasi dan aktif terlibat di dalamnya sehingga mereka

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mampu untuk melakukan pencegahan sejak dini terhadap timbulnya suatu penyakit. Adapun untuk petugas kesehatan tetap melakukan pendampingan dan pemantauan secara rutin pula kegiatan *health education* tersebut.¹⁴

Hasil penelitian menunjukkan hampir seluruh Anggota Brimob Di Kompi 1 Batalyon C Pelopor Satbrimob POLDA Jatim memiliki kemampuan dengan kategori baik dalam melakukan resusitasi jantung paru setelah dilakukan simulasi Resusitasi Jantung Paru. Adapun tindakan yang disimulasikan yaitu cara mengamankan lokasi kejadian, mengkaji respon korban, cek nadi carotis, langkah-langkah melakukan resusitasi jantung paru serta cara memberikan posisi recovery kepada korban. Hasil penelitian menunjukkan bahwa kemampuan responden meningkat setelah dilakukan simulasi, dan berdasarkan pengamatan yang dilakukan oleh peneliti sebagian besar responden mampu melakukan prosedur resusitasi jantung paru dengan baik dan benar setelah dilakukan simulasi.¹⁶

Efektifitas Simulasi Resusitasi Jantung Paru Terhadap Kemampuan Penatalaksanaan Resusitasi Jantung Paru Anggota Brimob

Berdasarkan hasil uji statistik yang telah dilakukan diketahui bahwa nilai *p-value* = 0,000 sehingga H1 diterima yang artinya simulasi Resusitasi Jantung Paru (RJP) efektif terhadap kemampuan penatalaksanaan Resusitasi Jantung Paru (RJP) Anggota Brimob di Kompi 1 Batalyon C Pelopor Satbrimob Polda Jatim. Hasil tabulasi silang kemampuan sebelum dan sesudah simulasi menunjukkan hampir seluruh Anggota Brimob Di Kompi 1 Batalyon C Pelopor Satbrimob POLDA Jatim yang memiliki kemampuan dengan kategori kurang melakukan resusitasi jantung paru sebelum diberikan simulasi memiliki kemampuan dengan kategori baik sesudah dilakukan simulasi yaitu sebanyak 22 (88,0%) responden dari total 25 responden.

Pertolongan yang tepat dalam menangani kasus kegawatdaruratan dalam hal ini yaitu cardiac arrest adalah Basic Life Support atau yang dikenal dengan Bantuan Hidup Dasar (BHD). Cardio Pulmonary Resuscitation (CPR)

atau yang biasa disebut Resusitasi Jantung Paru (RJP) adalah sekumpulan intervensi yang bertujuan untuk mengembalikan dan mempertahankan fungsi vital organ pada korban henti jantung dan henti nafas. Intervensi ini terdiri dari pemberian kompresi dada dan bantuan nafas.⁸ Resusitasi jantung paru bermanfaat untuk menjaga oksigenasi darah dan perfusi jaringan yang bertujuan untuk memperbaiki jantung sehingga dapat meningkatkan kesempatan hidup pasien. Komponen penting dalam melakukan RJP adalah kedalaman kompresi, kecepatan kompresi, ventilasi, *return of spontaneous circulation* (ROSC) dan meminimalisas i interupsi.¹⁰

Berdasarkan fakta dan teori yang telah dibahas peneliti berpendapat hasil peneliti yang ditemukan dilapangan sejalan dengan teori yang telah dijelaskan diatas, dimana simulasi resusitasi jantung paru efektif terhadap peningkatan kemampuan anggota brimob dalam melakukan resusitasi jantung paru, hal ini disebabkan karena dengan diberikan simulasi maka anggota brimob akan terpapar dengan informasi mengenai resusitasi jantung paru yang menyebabkan kemampuan anggota brimob dalam melakukan resusitasi jantung paru meningkat mejadi lebih baik karena anggota brimob sudah menguasai langkah-langkah resusitasi jantung paru dan hal apa saja yang harus dilakukan ketika ingin memberikan pertolongan pertama pada saat menemukan korban dengan henti jantung.

Kesimpulan

Dari hasil penelitian yang telah dilakukan oleh peneliti maka didapatkan hasil usia responden yang paling banyak berusia antara 25-35 tahun dengan pendidikan SMA dengan kemampuan sebelum diberikan pengetahuan tentang resusitasi adalah sangat kurang. Setelah dilakukan uji statistik didapatkan bahwa setelah dilakukan penelitian didapatkan kemampuan yang baik dalam pelaksanaan RJP sehingga sesuai dengan uji statistik bivariat yang menyatakan terdapat efektivitas simulasi RJP terhadap kemampuan penatalaksanaan RJP.

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